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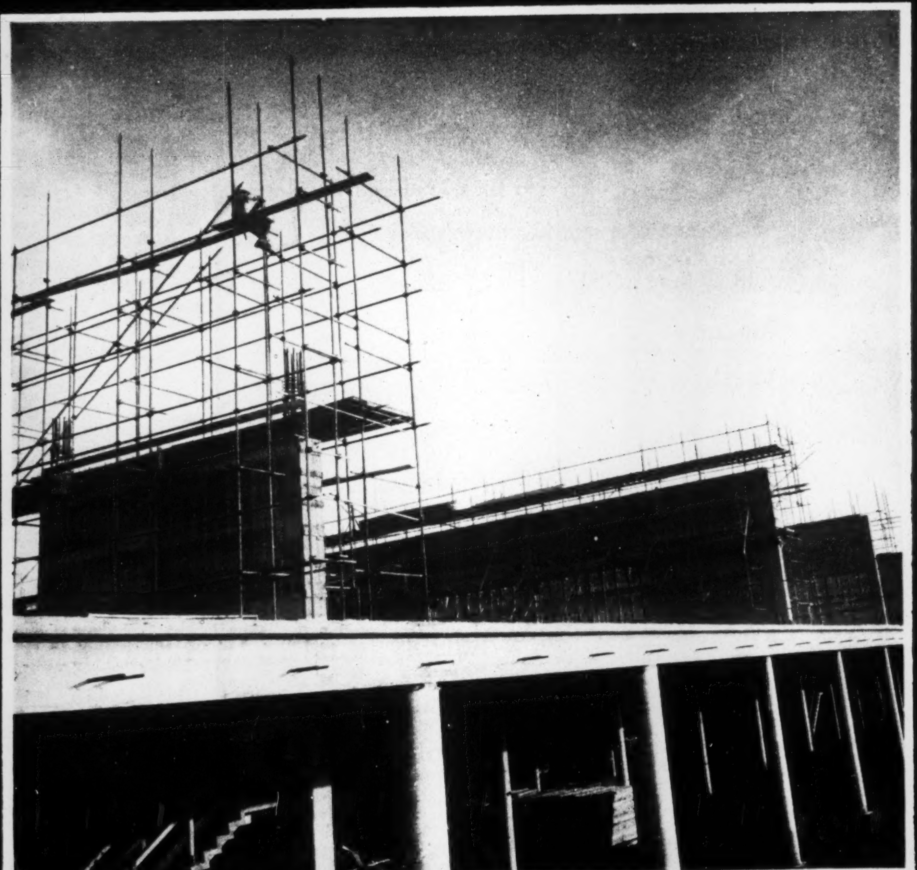

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ENGINEERING NEWS-RECORD

Member

Volume 149 | November 20, 1952 | No. 21

WALDO G. BOWMAN
Editor

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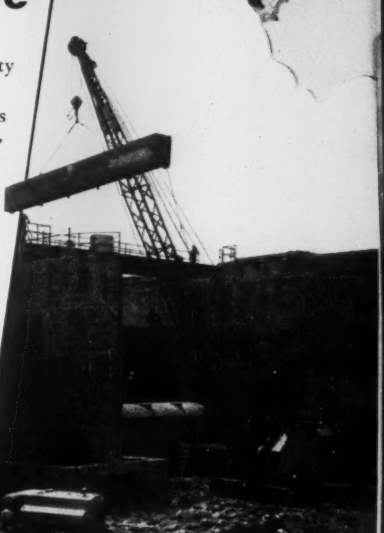

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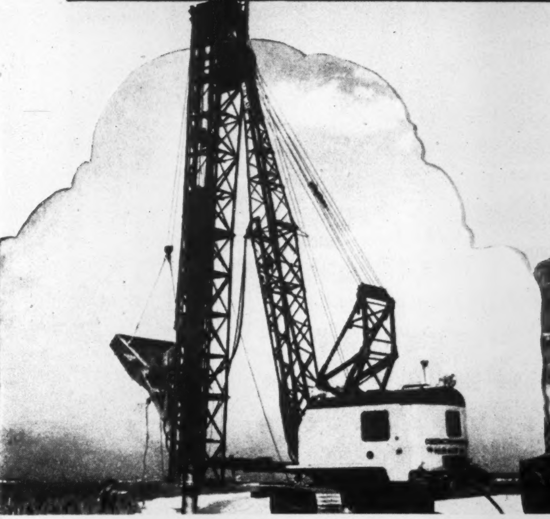

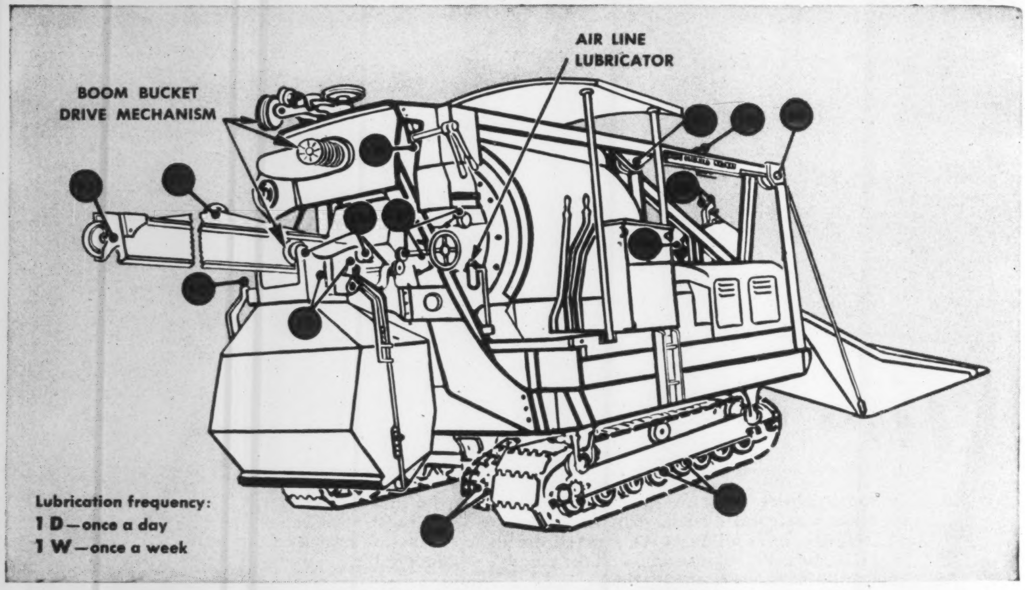
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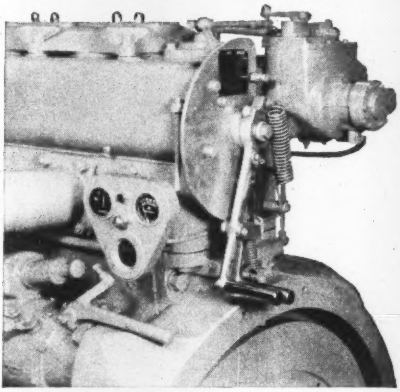
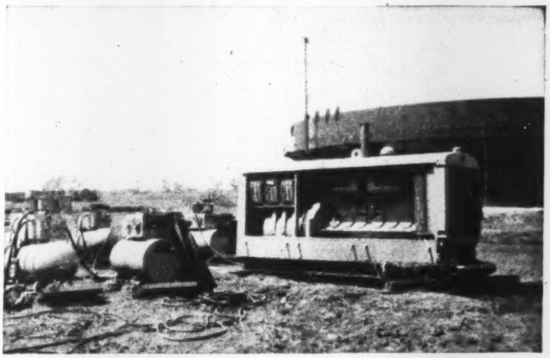
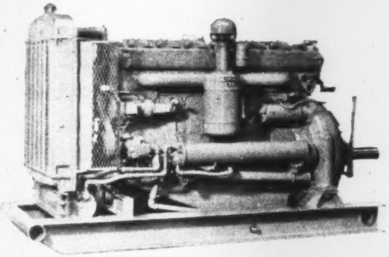


the hydraulic servo-type governor

Only MURPHY gives you this important feature...



Murphy Diesel 100 K.W. generator set powering a battery of welders used in tank erection.



ONE vital characteristic of a diesel engine used in tough construction service is its ability to handle all types of loads—steady loads that require accurate speed control or varying loads where instant response is essential. The Murphy Diesel—because it has a hydraulic servo-type governor—controls speed precisely, responds instantaneously. It responds so quickly and positively that many operators have said, "It seems to know in advance what the load is going to be."

This instant response is made possible by the Murphy's basic design—a "true" diesel with unit fuel injection—plus the hydraulic servo-type governor. This governor harnesses lube oil pressure to assist the flyweights in controlling the proper amount of fuel to the injectors, and providing positive, accurate control at all times.

An important safety feature is the ability of the governor to automatically shut-off the engine if lube oil pressure falls below a safe level. There is no danger of running the engine with lube oil dangerously low.

The hydraulic servo-type governor is just one of Murphy's exclusive combination of design features. Others are described in the booklet *"10 Questions to Ask a Diesel Engine Salesman"*. Ask your Murphy Diesel Dealer for a copy or write direct.

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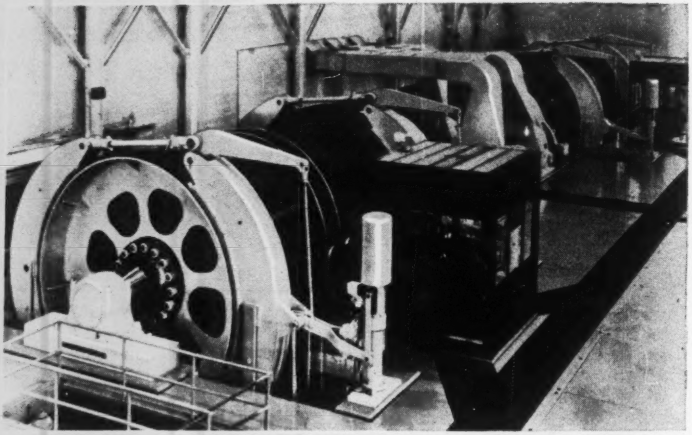

GOOD NORDBERG JOB leads to a better one SKF EQUIPPED

Nordberg Mfg. Co. installed a hoist at Cleveland Cliffs Iron Co's Ishpeming mines in 1942. So successful was this application that they were called upon to supply two additional hoists for another shaft at the same installation.

These two new hoists—one for ore, the other for men and materials—have drums constructed of forged and rolled steel plate welded into one piece, providing a smoothly operating, uniformly grooved surface for winding the 25,600 ft. of 1⅞″ wire rope.

SKF's role in the success of this installation is a big one—because the drum shafts as well as the pinion shafts are mounted on SKF self-aligning Spherical Roller Bearing Pillow Blocks.

In the Cleveland-Cliffs installation, SKF bearings permitted considerable reduction of the length of the drum shaft, and provided minimum starting friction under repeated start-and-stop operation.

In every industry, SKF Spherical Roller Bearings are known for the fact that they are completely self-aligning; that their full capacity is always available for useful work; that they set the pace for rugged performance.

All industry knows, too, that it can depend on SKF *engineering* cooperation in the design of more efficient equipment.

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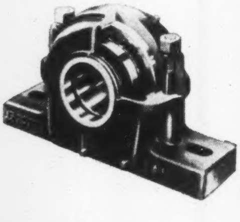

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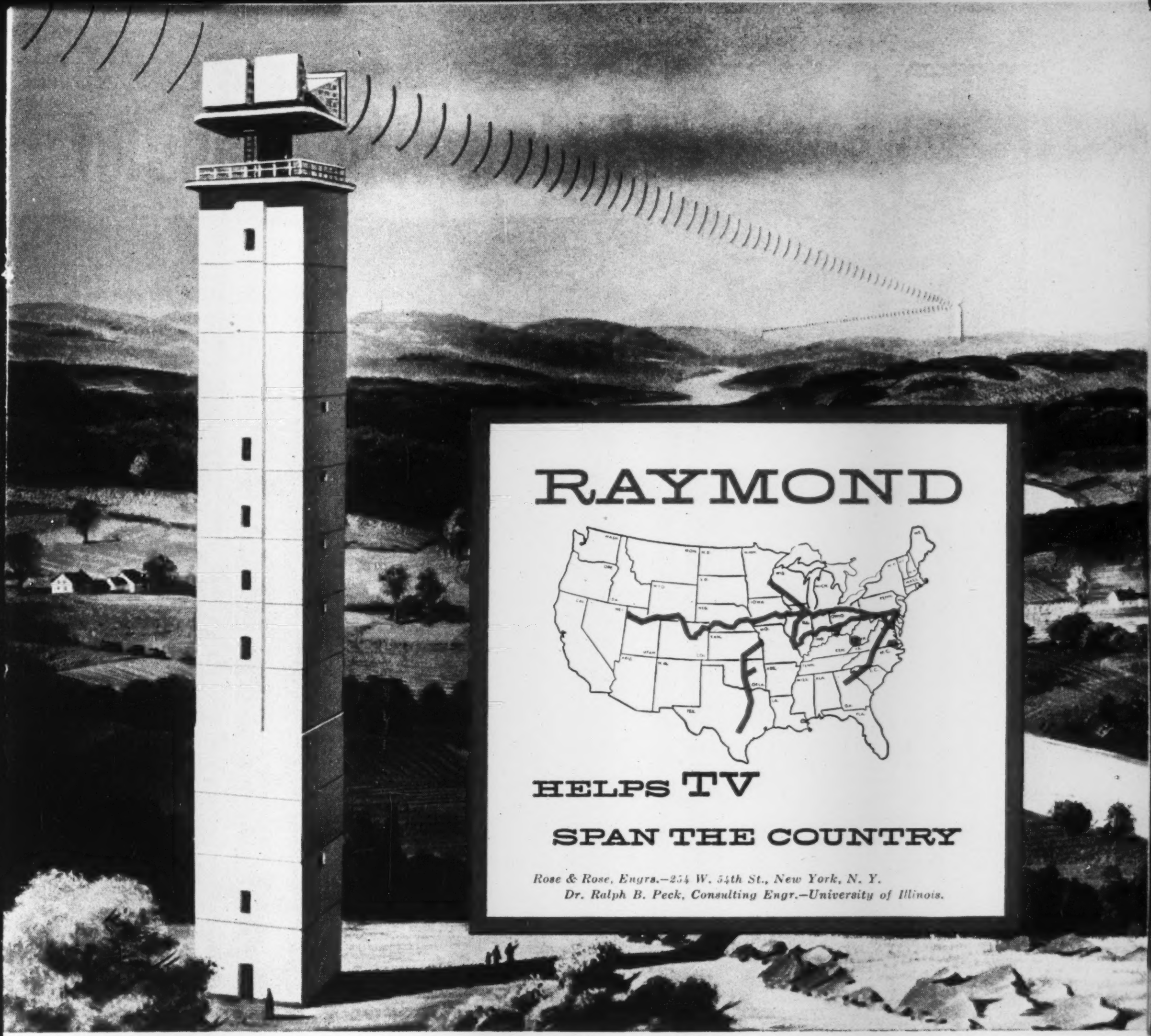
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Artist's rendering of the new skyway that spans the nation —the A. T. & T.'s Microwave Radio-Relay Circuit.

Completing another job in record time, the Gow Division of Raymond conducted test borings and made soil investigations for over 150 locations of A. T. & T.'s radio-relay towers which carry television across a major portion of the country. In the accomplishment of this work, Raymond personnel and technique once again played an important part in an outstanding achievement.

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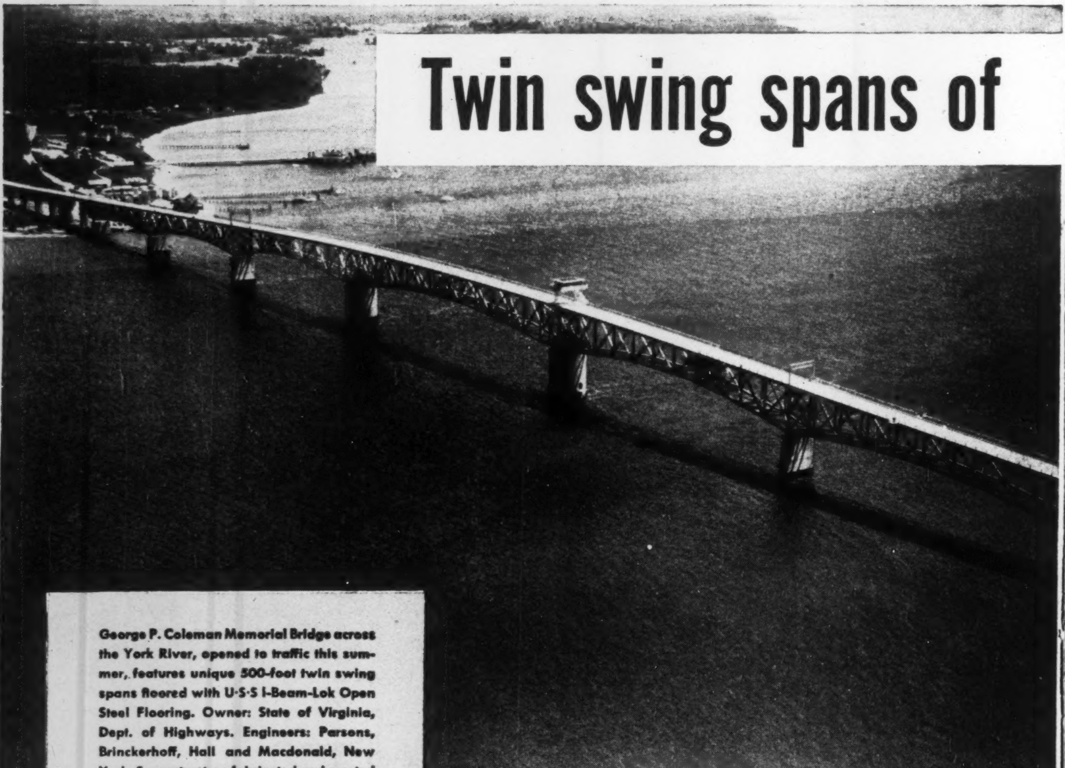
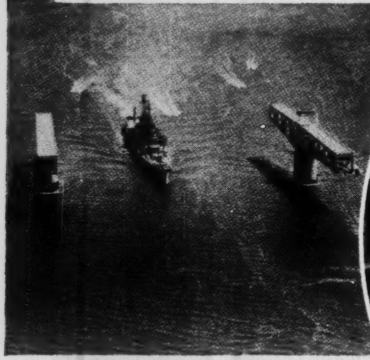
Making Gow test borings for one of the towers at an elevation of 8,900 ft. in Wyoming.

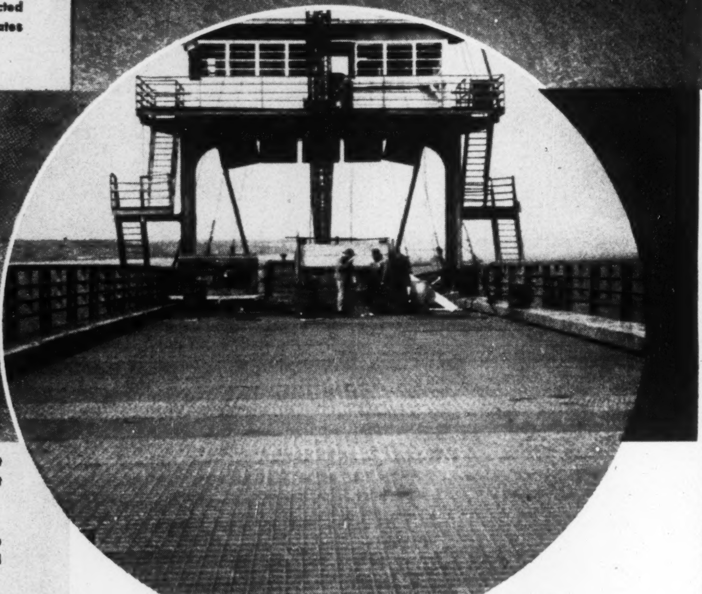
Twin swing spans of



George P. Coleman Memorial Bridge across the York River, opened to traffic this summer, features unique 500-foot twin swing spans floored with U·S·S I-Beam-Lok Open Steel Flooring. Owner: State of Virginia, Dept. of Highways. Engineers: Parsons, Brinckerhoff, Hall and Macdonald, New York. Superstructure fabricated and erected by American Bridge Division, United States Steel Company.



Swing spans open to provide a 450-foot freeway that allows passage of the largest ships of the United States Navy.



U·S·S I-Beam-Lok Open Steel Flooring on the south swing span with the control house in the background.

YORK RIVER BRIDGE

are floored with weight-saving

U·S·S I-BEAM-LOK

Design of the new George P. Coleman Memorial Bridge that spans the historic York River between Yorktown and Gloucester Point, Va., is highlighted by twin swing spans that open 90° simultaneously to provide a 450-foot navigation opening.

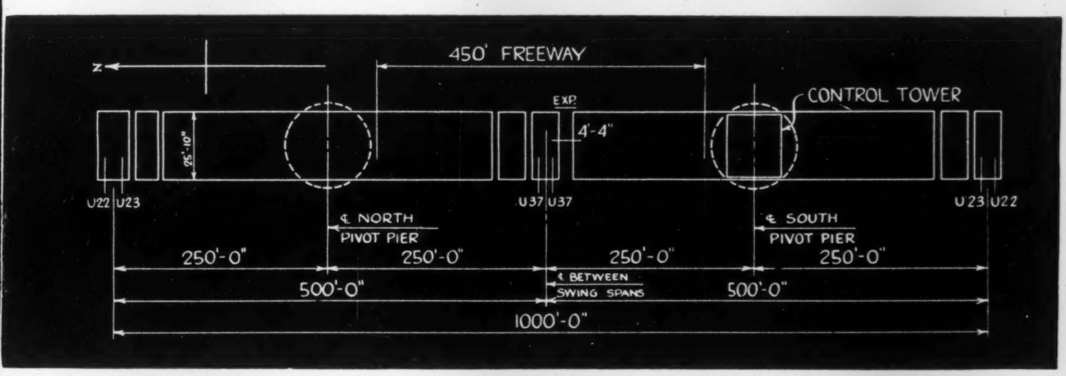
Savings were effected in both the weight and the cost of these swing spans by the use of lightweight U·S·S I-Beam-Lok Open Steel Flooring for this portion of the bridge.

The 5″ U·S·S I-Beam-Lok Open Steel Flooring weighs only 18.8 lbs. sq. ft., against a weight of 87.5 lbs. sq. ft. for a concrete slab of comparable strength. U·S·S I-Beam-Lok, weighing 484,000 pounds, was used on the spans, where a concrete slab floor would weigh approximately 2,250,000 pounds. A reduction in the dead load in the structure materially reduces the quantity of steel required in the floor systems and trusses and also the size and weight of the pivot bearing, balance wheels and track, and the machinery.

In addition, use of U·S·S I-Beam-Lok reduced resistance to vertical wind loads.

U·S·S I-Beam-Lok Open Steel Flooring—"the modern floor for modern traffic"—combines lightweight and reduced costs with roadway rigidity, ease of erection, a smooth, hard surface and low maintenance costs. It is also available in concrete-filled type.

Our engineers will be glad to discuss its possibilities with you.



UNITED STATES STEEL COMPANY, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
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UNITED STATES STEEL

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READER COMMENT

Clear glass vs. glass block

Sir: In the article, "Hexagonal Classrooms Get Enthusiastic OK" (ENR Aug. 7, 1952, p. 46), the last sentence of the third paragraph reads, "the hollow prismatic blocks keep brightness low, yet deliver at least three times as much light on the corridor side of the room as the usual clear glass installation would".

I question if this comparison is based on illumination levels taken in two hexagonal classrooms which were identical except that one was glazed with the prismatic blocks and the other with clear glass. Completely accurate comparison of such rooms would also require identical orientation and identical natural illumination incident on both glazings. Furthermore I question why the comparison was made between this installation of prismatic blocks and "the usual clear glass installation" instead of between this installation and "the usual prismatic block installation."

The statement as it stands would confuse the casual reader into believing that prismatic blocks deliver at least three times as much light on the corridor side of a classroom as clear glass windows. Actually the statement must be reversed for rooms which are identical except for the two types of window This fact is supported by data given by prismatic block manufacturers.

The article also infers that clear glass windows must at all times be covered with shades to prevent excessive glare. Shades are usually required on clear glass windows when in direct sunshine, but an overcast sky is most common throughout the school year in most parts of the United States, including New Jersey, and there is no sun on a west window in the morning, no sun on an east window in the afternoon and no sun on a north window during school hours.

In the opinion of most illuminating engineers the East Orange hexagonal rooms would be much better daylighted if clear glass had been used instead of glass block. The simple reason for this is that transmittance of clear glass is a minimum of 80% while that of prismatic glass block is less than 50%. Prismatic blocks are a fixed control which cannot be adjusted to meet the wide variations in natural light, and good design practice indicates that an architect or engineer should use material which is adequate for most of the school hours and not one which is adequate only a small part of the time when there is an abundance of natural light.

O. F. Wenzley
Manager, Sales Technical Service
Libbey-Owens-Ford Glass Co.
Toledo, Ohio.

Sir: Mr. Wenzley has asked for details concerning my statement that "The prismatic glass block delivered three times as much light to the inside wall of a classroom as a clear glass installation."

The above statement was based upon measurements taken with a Westinghouse light meter in two adjacent standard classrooms, same orientation, same time of day (2 pm), east side of building.

The test was not a valid one for practical purposes, because the shades in the room with the clear glass were rolled up completely. If a teacher had been using the room at the time, the odds are approximately two to one that the shades would have been drawn about 50% to reduce sky glare, even with the sun on the opposite side of the building. If the shades had been drawn to what constitutes a normal, practical position for such circumstances, the light delivered by the clear glass would have been considerably less, and the comparison would have been still more favorable to the prismatic block.

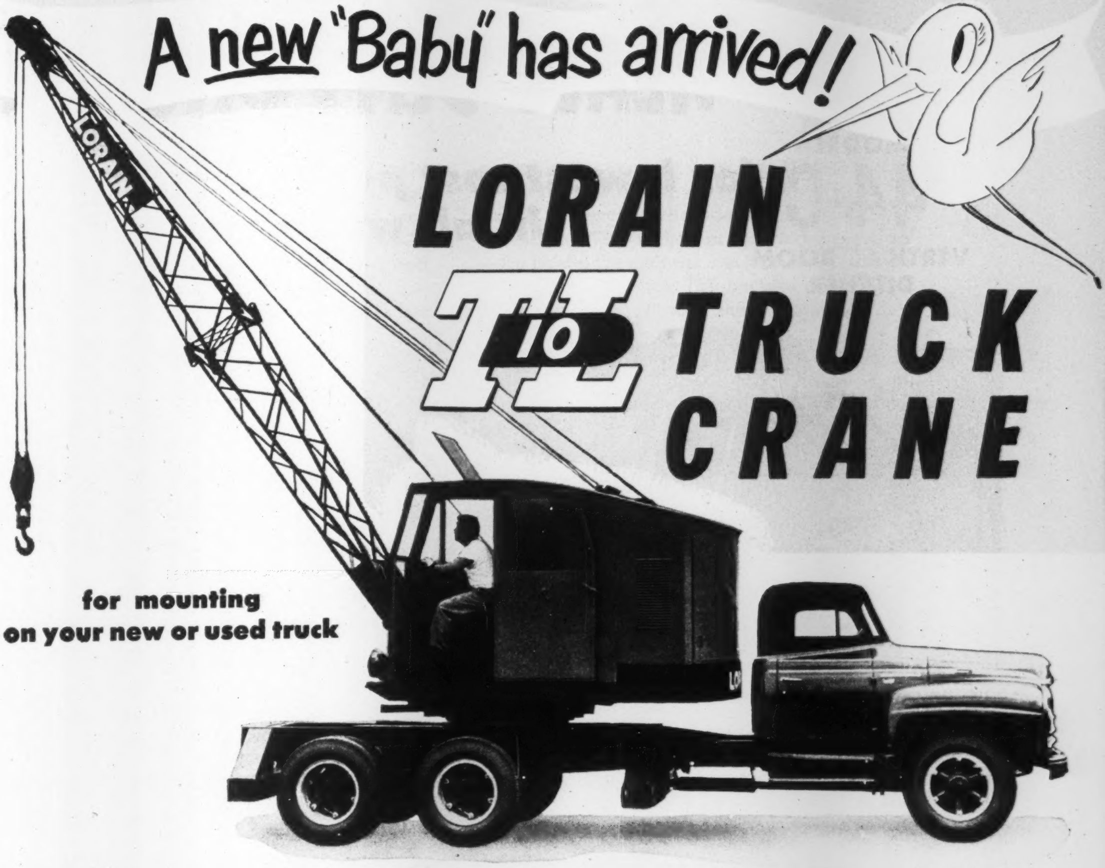
Mr. Wenzley's emphasis upon the amount of light delivered by clear glass, presumably before shades are drawn, does not make it clear whether he recognizes a distinction between raw light and those tolerable light ratios for the task and its surroundings that have been favored by those interested chiefly in sight conservation and reduced nervous fatigue. In the words of Henry L. Wright, well-known school architect, "The reduction of sky-brightness to less than ten times task brightness is our biggest unsolved problem. In order to maintain tolerable brightness-differences between the task and the sky, all window exposures must be shielded from the sky."

These problems concerning glare involve north light and certain cloudy conditions as well as direct sunlight on the classroom windows.

It might be contended that the results of the test would have been different if certain light controls had been used. To this we must reply that we have not discovered any controls that satisfy all three, or even two of the following three requirements:

(Continued on page 14)

A *new* "Baby" has arrived!



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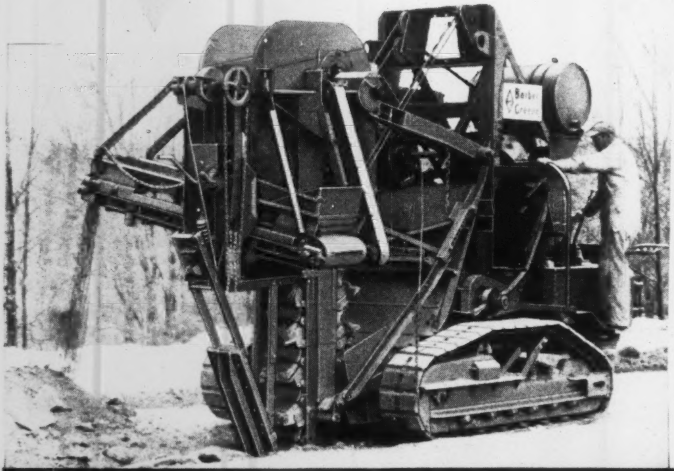

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DIGS CLEAN . . . **leaves vertical walls . . . square cuts . . . eliminates most expensive handwork.**

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Another time- and money-saving feature is the exclusive B-G overload release that slips on overload and automatically resets itself until the obstruction is removed or the operator stops machine—and then it re-sets itself for continued operation, protecting machine, hidden mains, cables, etc.

If you have a ditching job, or are considering one—plan to have the advantages of the B-G Model 44-C working for you.

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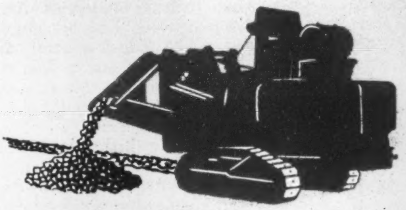
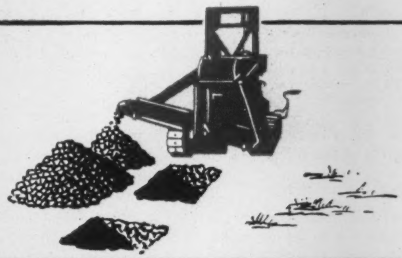
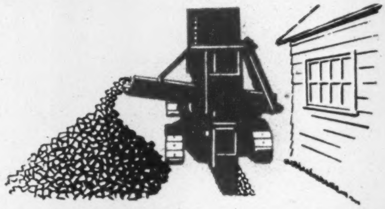
Higher unit pressure permits the 44-C to get a start in the toughest material. All the weight of the boom is on the work. The Vertical Boom has no tendency to climb—no matter how hard the digging. The buckets are moving straight up—the harder the material, the harder the buckets hold the boom down. The buckets are always moving material through the shortest path.



TILING—and drainage jobs are possible year around because of "milling action" of 44-C in frozen ground, asphalt pavement, clay or wet gumbo. Sure-footed traction, fast digging speed variation and accurate control of line and grade make the 44-C ideal for this application.

UNCOVERING JOINTS—wasting no digging effort, the 44-C cuts straight down to joints through toughest formations. Sensitive overload release, precision cutting and accurate control make this the practical and economical machine for any heavy-duty, intermittent work.





CRAMPED QUARTERS—offer no operating difficulties with the compact 44-C; rapid maneuvering, full crawler traction, narrow, overall width, and the close-hung Vertical Boom allow ditching close to walls, foundations, etc. Vertical Boom digs right up to curbs, pipes, etc., leaves no ramp.

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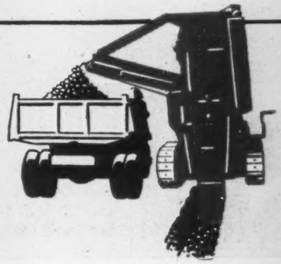

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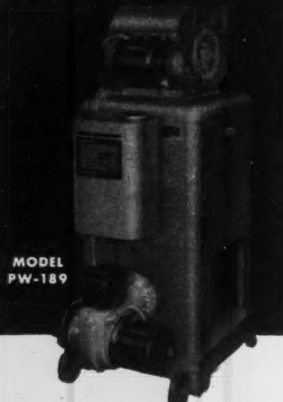

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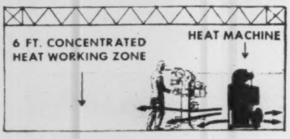

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READER COMMENT

1. Efficiency in delivering light of desirable quality and quantity on the inside desks of the classroom;

2. Retaining efficiency without the necessity for constant attention and adjustment;

3. Ease of maintenance at a cost that is not excessive.

Mr. Wenzley's letter states that "most illuminating engineers believe the East Orange hexagonal rooms would have been much better daylighted with clear glass." I would appreciate receiving the names of five such experts, provided they have an interest in sight conservation and reduction of nervous fatigue, and also that they have no vested interest in the sale or manufacture of glass products.

Henry E. Kentopp
Superintendent of Schools
East Orange, N. J.

In favor of alternate designs

Sir: The various pro and con views on alternate engineering designs that have appeared in your Reader Comment columns have been most interesting.

The writer would submit the opinion that, assuming economy to be a primary engineering objective, it would be a most wholesome and stimulating experience for American engineering to have alternate designs widely used on public work. Except for the greater time involved, it would appear that alternate designing should be done and the winning competitive design be selected by a board of engineers *and contractors* before a general call for bids was issued. If time be short, the European method is the one that should be followed.

Major economy in design results not from slight differences in computed stresses or in the number of rivets or of stirrups provided, but in the basic layout of a structure. What is the general plan of things, what material or materials shall be employed, how shall the desired function and purpose of the structure be most economically accomplished? These are the questions that profoundly affect costs and it is in substituting a variety of opinions and judgments *backed by cold hard cash* for a single, official judgment or assumption that competitive designing will provide the most useful answers.

Consider, if we may, the great Venezuelan arches, ENR Sept. 11, 1952. Here are three magnificent bridges costing "only 5½ million." Certainly nothing can rival the appearance of a great arch in a dramatic mountain setting and esthetics may well have been the governing consideration which determined the type of these bridges. But otherwise, why have 450 to 500-ft arches across small streams, even if the grade is 220 ft above them? Comparatively low cost bridge piers, having practically vertical reactions, can be built with slip forms to 220-ft heights; cable ways for hauling and distributing materials can likewise operate at heights of 420 ft or whatever is necessary.

Perhaps fine appearing bridges costing only $4½ million might also have been built at these sites. Alternate designing would have brought out that fact, if fact indeed it were. And after all, a saving of one million dollars or of one hundred thousand dollars is not to be scorned even if it does come from a public treasury.

Competition is highly stimulating to sluggish thought, and losing out, though mortifying, is also stimulating. American engineering could very well profit from having lots of alternate designs.

Homer M. Hadley
Consulting Engineer
Seattle, Wash.

Question of age

Sir: In this running discussion that has been going on in your pages about the Engineer Shortage, it seems that this shortage, if any, occurs in the 25- to 40-year-old age range. There could not possibly be any shortage if employers are still able to stipulate an age preference.

I read that the people of the United States selected an ancient 62-year-older for the most strenuous and responsible job in the world. Can some 30 million Americans be wrong?

William Flesher
Philadelphia, Pa.

CALENDAR

Society for Experimental Stress Analysis, Hotel McAlpin, New York City, Dec. 3-5.

American Association of State Highway Officials, annual meeting, Municipal Auditorium, Kansas City, Mo., Dec. 10-12.

Illinois traffic engineering conference, University of Illinois, Urbana, Dec. 11-12.

National Association of Home Builders, Conrad Hilton Hotel, Chicago, Ill., Jan. 18-22.

Mason Contractors Association of America, Sherman Hotel, Chicago, Ill., Feb. 1-4.

American Road Builders Association, Hotel Statler, Boston, Mass., Feb. 9-11.

Monsanto PENTA goes to school!

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When officials made plans for Waltonville Community High School, Waltonville, Illinois, they specified longer life for screeds and subflooring. They specified penta preservative.

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If you specify wood for any structural purposes, you will be interested in Monsanto's new booklet, "*For maximum wood protection, specify Monsanto Penta.*" For your copy, contact the nearest Monsanto Sales Office or MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 800 North Twelfth Blvd., St. Louis 1, Missouri.

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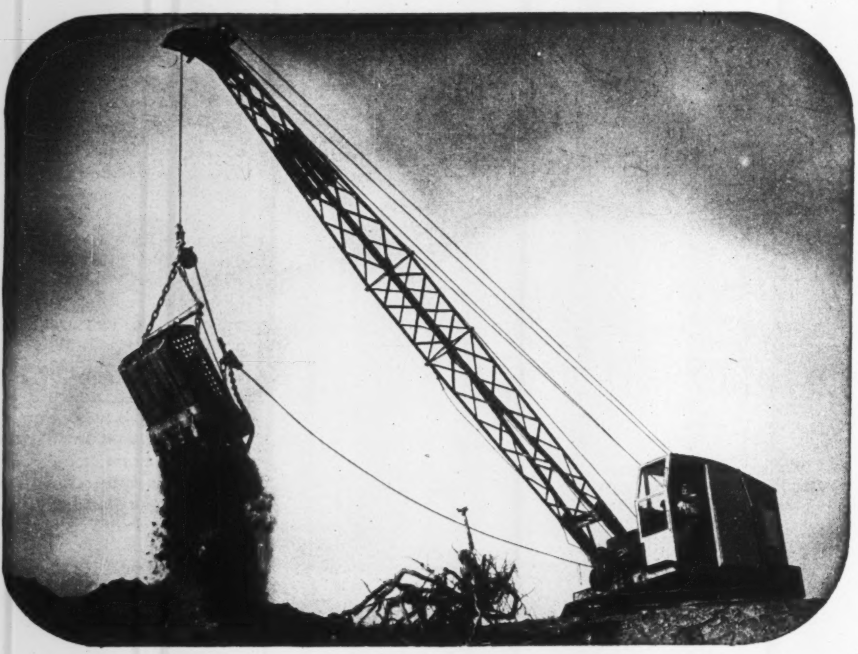

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- **Labor law changes coming**—There are some solid reasons indicating that it's a sure bet for changes in U. S. labor laws that will be of benefit to construction. Senator Taft will be chairman of the Senate Labor Committee again; most labor leaders—except building trades' Richard J. Gray—are in bad grace with the incoming administration and Congress; objectors who yelled "repeal or nothing" got a sharp lesson on that point Nov. 4.

  With Taft again at the controls, it appears likely that something like the Taft-Humphrey bill (S. 1973) that passed the Senate but died in the House last spring (ENR May 29, p. 30) will be put through. Among other things, that bill would have permitted contractors to sign union-shop contracts before work begins on a project, require a worker to join a union within seven days.

  One provision of S. 1973, however, isn't likely to be pushed: a section that set aside state "right-to-work" laws that prohibited union or closed shops. States's rights congressmen have objected strongly.

- **Aluminum getting shorter**—If you're using a lot of aluminum—look for a hard time for the first three months of next year, and then look for it to get a lot worse. Aluminum producers are unhappy enough about the situation to start looking for alibis—best being water shortages through key areas in the West, which have cut down heavily on power supplies.

- **Housing fight goes on**—Acting under the U. S. Supreme Court's affirmation that it must carry through its commitments (ENR Oct. 16, p. 19), Los Angeles' City Housing Authority has let contracts totaling nearly $8.5 million for 1,100 units of its planned $110-million, 10,000-unit program.

  But die-hard opponents of the program are not discouraged. City councilmen followed up the Nov. 4 election with a request—direct to the President—that U. S. Public Housing Administration suspend operations on the program until President-elect Eisenhower and his administration could review it. (Background: City council, after first authorizing the housing, decided to back out, and was supported by a referendum vote, but State Supreme Court declared that the city's contract with CHA was binding, must be carried out. U. S. Supreme Court refused to review the state court's action).

- **Indecisive forecast**—The Bureau of Labor Statistics hasn't made up its mind about forecasting construction activity for 1953—but there'll be some kind of estimates, anyhow. What's bothering BLS is whether or not it should join with Commerce's Building Materials Division in making the forecasts. But there will be an estimate—Commerce is prepared to go ahead alone if need be.

- **More airport money**—Civil aviation proponents see in the imminent departure of Commerce Secretary Sawyer a better chance for federal money for the airports. Grounds: Sawyer always held down such appropriations requests, but as a parting gesture, he has approved a study that will back up requests for more that $40 million in federal aid for fiscal 1954. Observers expect the new Congress to favor that.

- **Never mind that tree**—The government's efforts to save the nation's "dwindling" forest reserves are badly misdirected—in the opinion of the National Lumber Manufacturers' Association, anyway. With their axes sharpened, the lumbermen took healthy swings at recommendations of the President's Materials Policy Commission which recommended federal-state control of timber cutting.

  Said the lumbermen: The commission's proposals are based on inadequate and antiquated forest surveys. As a matter of fact, if timber supplies keep up as they have been (and the NLMA thinks they will) and demand for timber shrinks as it has for the past few years, there will be a great oversupply of lumber within 20 years. They want state control, if any.

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INLAND

Business outlook for 1953

The outlook for business in 1953 is bright. There will be some problems, especially in the second half. But overall totals for business activity—including construction—promise to surpass their 1952 levels.

Right now, business is humming. The Federal Reserve Board's Index of Industrial Production hit 225 in September and about 226 in October—the highest levels since World War II. Construction is booming along at near record levels. Unemployment has reached its lowest point since the war. And industries that were in slumps a year ago—like textiles and TV sets—have snapped back to prosperity.

Present good business promises to continue through at least the next six months. With defense expenditures still rising, capital expenditures at near record rates (ENR Nov. 13, p. 17) and construction itself setting new records, the public will have plenty of money to go on buying large quantities of goods. The FRB index may get up to 230 in the first few months of next year.

Economists and business forecasters are pretty much agreed on this happy short-run outlook. But they raise some serious questions about prospects for the second half of next year. Here's a rundown on some of these possible problems. None of them is too serious by itself; some of them may never develop. But these are the points to keep in mind.

By mid-1953, the economy will have lost much of the extra upward push it's been getting from defense and capital spending. The rate of defense spending went up $22.9 billion between the end of 1950 and the end of 1951, then rose another $9-10 billion by November of this year. In the next year, defense spending is not likely to rise more than about $2 billion. And it might not go up at all if the new administration decides to economize on the federal budget.

Capital spending may be down slightly next year, after rising about $5.7 billion from '50 to '51, and another billion dollars or so in 1952. And the biggest part of capital spending is likely to come at the beginning of the year. By year-end, the big defense industrial expansion programs will be approaching completion, and the rate of spending is expected to drop off.

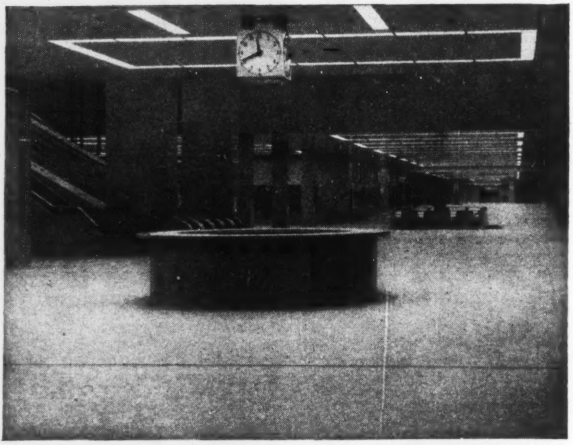
On the other hand, construction, the third big basic force pushing the economy upward, will do its part again next year. Total work put in place is expected to rise slightly. But even here there's chance that the rate of work near the end of next year will slip a little—espcially if housing begins to drop as a lot of observers think it will.

Overproduction in some lines is another threat for 1953. For instance, textile manufacturers might do the same thing they did in early 1951—produce more than they can sell, then be forced to shut down until inventories can be sold. Makers of television sets made the same mistake in 1951; they producd at a rate of 10 million sets a year, when consumers were buying only 5-6 million. So they had to cut production drastically.

Basically this is a problem of over-capacity. And there's going to be a lot more over-capacity in the economy next year than there has been for some time. The steel industry, for instance, may have as much as 118 million tons of capacity by the end of next year. But it can probably sell only 105-110 million tons of steel. If plants have to shut down, that means loss of jobs and income to buy consumer goods. And it could also lead to lower business spending for new plants and equipment.

But—despite these problems—average levels of general indicators of prosperity will be higher next year than in 1952. The FRB index may average as high as 223—up six points from 1952. Gross national product is likely to go up to $357 billion, against about $345 billion this year. On balance, 1953 looks like a very prosperous year—despite the threats of trouble toward the end.

Where TERRAZZO keeps its beauty beneath a quarter-million busy feet



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For further information see SWEET'S Architectural Catalog, Section 4g/Uni and 13f/Un, or write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

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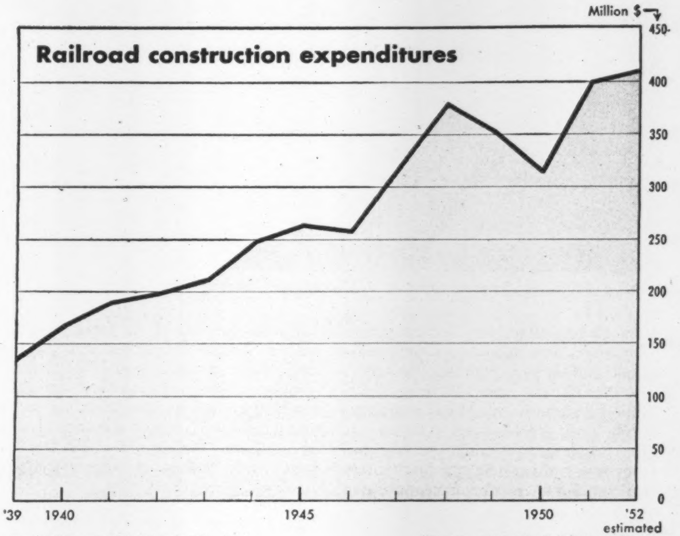


Dept of Commerce & Bu Labor Statistics data: Estimates and chart by ENR Business News

Railroads push construction to speed traffic, services

Following a meeting of its board of directors last week in Pittsburgh, Pennsylvania Railroad's president Walter S. Franklin disclosed an important decision: PRR is launching a 3-year $47-million program of freight service improvements. The action pointed up a huge program of increasing importance to the construction industry.

The program includes two major expansions.

The bulk of PRR's east-west freight funnels through its Conway Yards some 25 miles northwest of Pittsburgh, which is one of the largest classification yards in the country. About $34 million will be spent to triple present capacity of the Conway Yards. When completed in 1955 it will be 3.5 mi long, 85 tracks wide at the center, and will classify up to 8,000 cars daily. The schedule of freight train runs will be cut by from two to 12 hours.

At Hollidaysburg, eight miles south of its huge repair yards at Altoona, PRR will build the "largest and most modern" freight car repair shop in the country at a cost of $12 million. When completed in 1954, it will provide facilities for repair of 50 cars a day.

It was a bold decision. PRR is sparking another offensive to meet the crowding competition of trucks and barges. Amid the uncertainties of changing administration and transition economy, it is striking out to speed traffic and improve service—and is financing the venture out of its own resources.

• The big picture—PRR's action signalizes a new phase in a continuing trend among the nation's railroads that has led to capital expenditures of over $7 billion since the end of World War II—a trend that has shown a sharp upsurge since the outbreak of the Korean war in 1950. Of this total, nearly $2 billion has been for trackage, bridges, and structures; the rest for cars and equipment.

Last year's expenditures of nearly $400 million for construction of new trackage and structures were the highest since 1930. Most of the construction in the late 20s was expansion construction. Today it is modernization to meet the pace of diesel locomotives, bulk freight handling, and deluxe passenger accommodations.

This year railroad construction expenditures are expected to top those of last year and soar to $410 million (see chart, left). And the trend will continue strong into 1953.

This activity gives evidence that the railroads are now heavily committed to a program of holding and expanding their share of traffic by offering better and faster service.

As a result, railroad revenues are going up; operating costs are going down. Net income through September was estimated at $502 million. This compares with $391 million last year. Railroads are now averaging a 4.25% return on their investment, less than the 6% they feel is the minimum they require to carry out necessary modernization—but climbing in the right direction.

• Plenty on the books—Construction now on the books for railroad facilities includes over $645 million for more than 1,000 projects. The list covers:

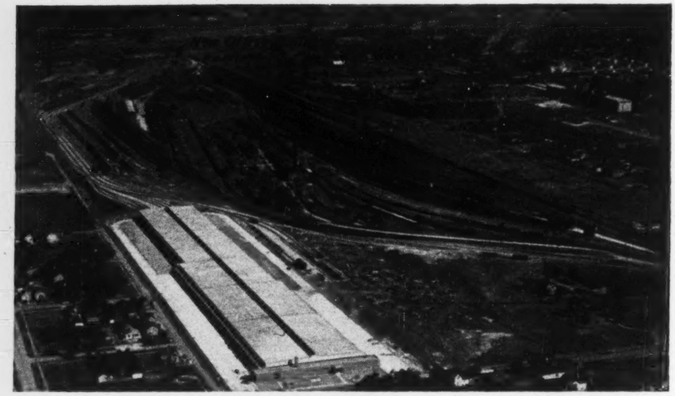
- $139 million for 59 passenger and mail handling facilities projects, including the big Union Station at New Orleans (see below).
- $200 million for 194 repair shop and related facilities projects.
- $80 million for 189 signal and communication system installations.
- $85 million for 62 yard changes and expansion projects.
- $43 million for 119 bridge projects ranging from single spans to New York Central's Harlem River Bridge in New York.
- $98 million for 23 freight handling projects, and 352 miscellaneous jobs ranging from tunnel work to power lines.

To finance these projects, the railroads have continued to use earnings as the only important source of funds. They have taken advantage of fast amortization certificates to aid a large part of the program. To date 326 amortization certificates have been approved for terminal and road facilities. They total $208 million. At least an equal number of applications are pending.

• From East to Midwest

Closely following World War II, one of the largest railroad expansions was in the construction of new coal and ore handling facilities on the Great Lakes. The New York Central, B&O, and C&O put nearly $27 million into new installations at Lorain and Toledo, Ohio.

B&O put its $4.5-million "car-a-



SANTA FE'S new terminal facilities in Chicago are bustling with activity.

minute" dumper system into operation at Lorain in 1948. At Toledo, New York Central and B&O put in $20 million and C&O put in $3.5 million to build new facilities. The NYC and B&O installation, designed to handle 20,000 tons of coal and 4,500,000 tons of ore annually, went into operation later in 1948. Improvements included three electric coal car dumpers, two electric ore loading machines, and supporting yards with a capacity of 5,400 cars.

Today additional coal and ore unloading facilities are mushrooming along the eastern seaboard. Last year at Curtis Bay, Md., B&O completed a $5-million ore import pier (ENR Aug. 16, 1951). PRR is now speeding to completion an $8-million iron ore pier in South Philadelphia. Reading Railroad is installing a car dumper and pier at Port Reading, N. J., at a cost of $2.2 million.

• **Big push on**—Both passenger and freight traffic will feel the impact of improvements now under construction by the PRR, NYC, B&O, and Reading to expedite traffic in the middle Atlantic area and west to the Great Lakes.

PRR is pushing an $8-million project from its Morrisville, Pa., yards to meet the traffic demands of U. S. Steel's new Fairless works, and is hustling to finish its $22-million 30th St. Station in Philadelphia. In the Philadelphia area alone, PRR has over $40 million in projects under way.

As part of an $83-million expansion program, NYC has completed construction of a new terminal to serve the United Fruit Co. in Weehawken, N. J. It built a $5-million four-level passenger station at Toledo, Ohio. Moving ahead fast is the $8-million Harlem River bridge in New York.

B&O, in addition to projects already mentioned, has just completed a $6-million tunnel on the Parkersburg branch east of Clarksburg, W. Va.

The Reading is completing a $2-million modernization of passenger facilities in Philadelphia, a $2-million project to serve U. S. Steel's Fairless works, a $3-million reconstruction of bridges and new control system on the Reading belt branch—all part of a program totaling nearly $20 million.

• **Hub in Pittsburgh**—The largest volume of traffic pouring through the Allegheny Mountains, in both directions, feeds through Pittsburgh. The Steel City has become one of the focal points of PRR construction.

In progress are $41 million in improvements—$27 million for passenger facilities and more than $14 million for freight service. The passenger facilities will require about three more years to complete, and include track relocations and extensions, new platforms and a new terminal building. New freight facilities include a $5-million warehouse in downtown Pittsburgh, and a $9-million railroad cut near Pitsburg in Ohio, which eliminates four old tunnels and modernizes a fifth. B&O is also considering a new terminal in the city.

• **Midwest hustling**—Late last month in Chicago the Santa Fe officially opened a new freight house at 47th and Hamlin, to climax an improvement program for handling carload merchandise in the Chicago Yards that took two years and an estimated $20 million to complete.

One of the largest and most modern installations in the country, it also includes a new general office building and new diesel servicing facilities. The freight house design illustrates the trend among railroads to speed freight.

The structure is 1,325 ft long and 204 ft wide, and is served by six tracks equipped to accommodate 156 cars. One of the six tracks is depressed for loading and unloading refrigerator cars.

Built into the freight station is a towveyor system consisting of a roller-type chain installed in the floor of the platform with special slot openings. The chain carries catch devices 15 ft apart that couple to a pin which drops from the bed of four-wheel towveyor trucks into the slot openings.

The entire system has a capacity of 500 four-wheel platform trucks. There are two towveyor circuits, one serving three outbound tracks and the other serving the three inbound.

To speed communication, nine freight checkers can speak directly through a central switchboard in the main office to any one of 35 portable talk-back speakers, or any one of the 132 plug-in communication places near the box cars and motor trucks.

Trucks arriving at the freight house with outbound freight are served by a dock that can accommodate 72 trucks. Trucks picking up inbound freight, reach the station over wide concrete aprons where 50 can be accommodated at one time. A fleet of fork-lift trucks, heavy duty dollies, etc. are available.

• **Others in Chicago**—The Illinois Central will complete a $3-million modernization and reconstruction program next month at its Markham Classification Yard on the southwest side of Chicago. The road's $6½-million bridge over the Ohio at Cairo, Ill., was completed last January (ENR Apr. 13, 1950, p. 41).

The CB&Q opened its $16-million, 71-mile Chicago-Kansas City cut-off (ENR Nov. 9, 1950, p. 32) on Oct. 28, for fast freight service. Streamliner passenger service—on a 7½-hr running time between the two cities—won't be available, however, until next spring. It is being held up, awaiting the delivery of necessary passenger equipment.

By 1954 the CB&Q expects to complete its new $4.5-million freight house now under construction in Morton Park, on Chicago's west side.

• **In St. Louis**—First major railroad freight station to be erected in St. Louis in 40 years, the new consolidated freight terminal of Missouri Pacific Railroad, was opened for service last Jan. 2.

It covers an area of five acres in South St. Louis along the Mississippi River, replacing Missouri Pacific's original station (ENR Jan. 24, p. 43).

• Southland humming

Half the grading work for the new Radnor Yards in Nashville, Tenn., is completed and the laying of track has begun on this $14-million project undertaken by the Louisville & Nashville, and the Nashville, Chattanooga & St. Louis Railroads.

Construction has not yet started on the yard office building, the compressor house, the extension to the roundhouse, the diesel house, and the conveyor system.

J. T. Alexander, superintendent of the Nashville terminals, said facilities will be complete enough by the summer of next year for the L&N to move in and begin operations. Not until the summer of 1954 will the project be sufficiently complete for the NC& St. L. to move its terminal operations.

In Birmingham, Ala., the Southern Railroad is pushing construction of its $9.2-million train yard and engine terminal facilities. It has recently completed $2-million worth of engine terminal facilities at its Press Street Yard in New Orleans, La., and a 2.8-million reconstruction of its John Sevier Yard in Knoxville, Tenn.

Norfolk & Western has extensive new projects underway in Virginia, West Virginia, and Ohio. Among the largest is a $4-million passenger and freight terminal facility installation at Elkhorn, W. Va.

• New Orleans builds

The streamlining of railroad passenger and freight terminal facilities in New Orleans in the past four years is part of an overall project which by the end of 1953 will have cost between $48 and $50 million.

Involved are:

1. Consolidation of five railroad passenger depots into one union passenger station.
2. Elimination of 120 of 144 grade crossings in the city through construction of 23 underpasses and overpasses and relocation of railroad passenger and freight trackage.
3. Abandonment of one major freight yard and construction of a new one.

The union passenger station phase of the project is about 80% complete. The total cost will be approximately $15.2 million.

Included in this phase is construction now under way, of the union station building proper at a cost of $2.3 million and of accessory buildings such as those for mail, express, baggage service, etc.

It also includes construction of nine miles of new passenger trackage to the union station and 1½ miles of new freight trackage for the Louisville and Nashville Railroad. Abandoned trackage will include six miles on the Illinois Central system, one mile on the Louisiana and Arkansas Railway, two miles on the L&N and two miles on the Southern Railway.

The program made necessary abandonment of the old Bernadotte Yards of the Southern Railway and construction of the new Oliver Yard, at a cost of about $2 million.

• Expressways tie in—Cost of the grade separation program is almost $29 million and thus far nine of the separations have been completed. Work on six separations is under way and work has yet to start on eight others. Total cost of the eight grade separations on which bids are yet to be received is estimated as of July at $6.2 million.

Linked with this general program are two other projects in the planning stage which together will cost in the neighborhood of $30 million.

The first of these is a new post office building near the new union passenger station and for which Congress has authorized expenditure of $14.9 million. The site for the building has already been selected.

The second is a $15-million Pontchartrain Expressway which will run from the new union station site to a point on the Air-Line Highway at the outskirts of the city. The expressway design has been closely interlocked with plans for the new union passenger terminal program.

Three major railway-highway grade separations are involved in the expressway, among them the $4.3-million Claiborne overpass now under construction as part of the union passenger station-grade separation program. This .781 of a mile long overpass provides 116 feet of traffic lanes over the proposed expressway and railroad tracks leading to the station.

When construction was recently started on the overpass, George Covert, state director of highways, said that its cost eventually will be $6.6 million, the additional $2.4 million to be used to construct high level traffic crossings.

The grade separation program, with the exception of the Claiborne overpass which is a state-federal project and the Peoples Avenue underpass, which is a state project, is being financed from city bond issues, with 15% of the cost being paid by the railroads.

The $15.2-million union station project, including relocation of tracks, is being financed from bonds issued by the city, but which will be retired by the railroads from rentals they pay to the Union Passenger Terminal Board.

• West still growing

In Wyoming the Union Pacific is hustling $14.3-million construction of new track alignment projects between Cheyenne and Laramie and between Cheyenne and Speer. Construction of $14 million in diesel-lomocotive servicing facilities is nearing completion in Los Angeles.

Southern Pacific has just completed a $17-million revision of grade and alignment project near Lookout Point Dam on the Willamette River, including two bridge river crossings. Work is moving fast on a $6.4-million conversion of the Roseville, Cal., yard and construction of new servicing facilities; construction of a $4.3-million by-pass line to serve the Los Angeles harbor area.

In Iowa, the Chicago, Rock Island & Pacific has a $8-million revision of grade and alignment under way between Council Bluffs and Atlantic, Iowa, involving construction of 34.5 miles of main line and removal of 42 miles of existing line. Recently completed are construction of a hump yard costing $3.5 million at Silvis, Ill., and a $1.3-million line to connect with Union Pacific track and Denver & Rio Grande Western's new yard at Denver, Colo.

• Opening new areas

While U. S. roads are throwing their heavy efforts into modernization, Canadian railroads are busy pushing back the frontier to reach untapped raw materials and new industrial developments.

The largest single construction project under way on the continent is the $115-million Quebec, North Shore and Labrador line being pushed 360 miles into the northern wilderness to reach Labrador's rich iron ore deposits (ENR Sept. 11, p. 38).

Construction on the 41-mi roadbed for Canadian National Railway's new line to the Alcan refinery site from Terrace, B. C., on the main Prince George-Prince Rupert line will begin next spring after the winter breakup.

Campbell-Bennett Ltd., Vancouver construction firm, has been awarded the $4-million job, which consists of clearing, grading and building bridge approaches. The contract for laying steel has not yet been awarded.

The Canadian National is nearing completion of a $4-million modernization of its central station at Montreal and $5.2-million reconstruction of its Bonaventure freight station there. Also nearing the finish is an extensive new terminal installation near Toronto, and other facilities. The Canadian Pacific is investing heavily in a series of improved terminal facilities.

South of the border in Mexico, the National Railways of Mexico has started construction on a $19.4-million passenger terminal in Mexico City, and a freight terminal in a new industrial district about 30 from the city.

Clean streams policy, progress aired; $130-million expenditure reviewed

A "middle of the road" policy was urged for pollution abatement in Harrisburg last week as Pennsylvania took stock of its postwar Clean Streams Program. In a one-day conference sponsored by the State Chamber of Commerce a cross-section audience including sportsmen, industry and government was cautioned against extremists.

"If streams are used sensibly they can benefit society; such an attitude will admit neither the extremist who regards flowing water as a catch-all, nor those who believe that no stream should carry anything but pure water and game fish," said Richard D. Hoak of the Mellon Institute of Industrial Research, Pittsburgh.

J. R. Hoffert, chief engineer of the State Department of Health, said industries are "always crying for standards." Had the Sanitary Water Board waited for standards to be developed, its program would not yet have been started.

Instead, he continued, industry was called upon to treat its wastes to a degree equivalent to that required for sewage—the "equivalent" to be worked out in each specific case.

• **Exemplary progress**—The result of Quaker State efforts, now acclaimed and watched as a guide by states across the nation are told in these figures of progress to date:

Something over $130 million has been spent on construction of municipal and industrial treatment works in the postwar period.

A total of 565 municipalities and 1,164 industries have been notified to abate discharge of sewage and industrial wastes.

Cities have spent an estimated total of $81 million to complete or place under construction 95 sewage treatment plants. In about eight years since the Clean Streams Program began.

The dollar figure does not include money spent for interceptors and sewers.

For industrial wastes, it is reported that 271 mills and factories have built treatment works, or now have them under construction and 306 complied with abatement orders without building plants—by connecting to sewers or improving "housekeeping." Meanwhile, silt pollution in the anthracite fields has succumbed to 172 desilting systems in operation at Pennsylvania collieries.

Thanks to the Clean Streams Program, facilities designed to treat some 514 mgd of industrial wastes are now operable throughout the state.

Dollars spent by industry for plants to treat industrial wastes can only be estimated. The best estimate: $50 million.

• **Industry by industry**—A single oil company has a waste treatment program going in Pennsylvania that will cost $6 million. Another has already spent $2 million.

Wastes at all paper mills, all tanneries and all canneries in the state are being treated to some degree. All steel mills treat their pickling liquors.

A survey of every abattoir in the state has been completed; milk plants are now being surveyed.

Work with industries must continue, far beyond the 1,164 notified on pollution so far. It is estimated that 15% of some 20,000 industrial establishments in the state produce wastes or are potential polluters, although many of these are small concerns.

• **One nut left to crack**—The big unsolved problem in Pennsylvania (and elsewhere) is acid mine drainage. There simply is no practicable means of treatment.

Acid formed when materials in the earth are reached by air and water may continue issuing from a mine years after it is abandoned. And it is claimed there is not enough limestone in the whole state of Pennsylvania to neutralize it.

State authorities make exceptions and allow discharge of pollutants into streams already impregnated with mine acids. But at the same time they continue the quest for a practical acid-mine-waste-treatment. Research goes on at Mellon Institute sponsored by the Sanitary Water Board and the Coal Producer's Association.

Permits are let for strip-mine operation by prescribed methods in hopes formation of acid will be prevented. Its discharge to streams is prohibited by law.

• **Growth of the program**—The Pennsylvania legislature passed a Purity of Waters Act back in 1905. The Sanitary Water Board first got jurisdiction over industrial wastes in 1937. Then in 1945 a law with real teeth got the postwar Clean Streams Program really rolling.

There was opposition, to be sure. Pollution abatement became a real issue in the state. In the days of Gov. James H. Duff the program was strongly plugged, as a means of attracting tourists and industry. Governor Duff won a seat in the U. S. Senate in spite of opposition he drew from the enthusiasm he showed for the program.

Last week's conference was seen by observers as indicating maturity of the Pennsylvania program. Its attendance had all the necessary ingredients for continued results—women's clubs to natural scientists.

Congress battle seen over Oahe Dam

Oahe Dam—the major structure on the main stem of the Missouri River envisaged in the Pick-Sloan plan—will be under heavy attack when the 83rd Congress meets in January, it was apparent last week.

A carefully organized campaign is reportedly under way with the aim of pulling down the dam's eventual height from the 242 ft at present planned to 60 ft—and even to eliminate the structure completely—although the dam is now reported to be 5% complete after expenditure of about $15 million.

Both power (an installed capacity of 420,000 kw as planned) and irrigation features of the structure are under fire, despite fears of supporters of the project as it was originally planned that reduction in height would vastly curtail power output from other Missouri River dams.

• **Battle progress**—Petitions are now being circulated through South Dakota for presentation to Congress, opposing the 242-ft dam height and calling for a halt in appropriations pending thorough review.

Meanwhile, the Federal Power Commission has received a report—prepared for 14 private power companies in South Dakota, Iowa, Kansas, Missouri and Minnesota—made by the engineering firm of Mead & Hunt of Madison, Wis. This report declares that Oahe is not needed at all for flood control.

Said the report: "The construction of the Oahe Reservoir, Big Bend and Gavins Point Dams does not seem warranted at this time, since flood control requirements are adequately provided for by reservoirs at Fort Peck, Garrison and Fort Randall" (Big Bend and Gavins Point would be re-regulating reservoirs).

• **Doubts**—Oahe Dam, of course, is not without supporters for its planned construction.

Army engineers—who have made no official pronouncements—are expected to oppose reduction in height on the ground that it would throw out of balance the multi-purpose features of the whole program in which irrigation, power and flood control are integrated. Without Oahe—or with a lower Oahe—the other dams on the river would have to devote so much of their storage space for flood control that the power output would be greatly reduced.

Recently, Robert Lusk, publisher of The Plainsman, a newspaper at Huron, S. D., commented:

"The only people who can possibly oppose a high dam would be those who want neither cheap power nor irrigation water in South Dakota."

The dam is planned as a $285-million project, scheduled to form an artificial lake stretching from Pierre, S. D., to Bismarck, N. D. It would have a capacity of 21,800,000 acre-ft.

Army ok's $126-million channel improvement work

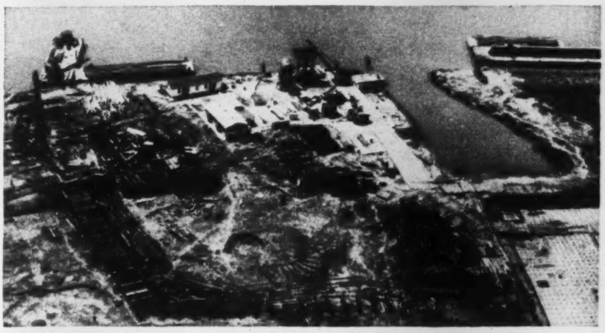
Long-advocated channel improvements on a 150-mile stretch of the Hudson River and the 40-mile Chesapeake and Delaware Canal have been approved by the Army's Board of Engineers for Rivers and Harbors, and are now up for state and federal action.

The Engineers' approval and reports have been submitted to state governments (New York, Maryland and Delaware) for comment, and will then be presented to Congress for appropriations.

The board called for: A $30.7-million job on the Hudson River to deepen the channel from New York City to Albany from its present 27 ft depth to 32 ft in soft material and 34 ft in rock; widening the channel from its present 300 ft to 600 ft from New York City to Kingston, and to 400 ft from Kingston to Albany; provision of a turning basin at Albany, and two river anchorages at Hudson and Stuyvesant.

The improvements would do much to answer complaints of shipping interests that ocean-going vessels loading at Albany (principally grain) are forced by channel limitations to stop loading far short of actual ship capacity. Oil carriers similarly are limited in amounts they can carry up-river.

Canal improvements (to cost $96 million) recommended include: deepening from present 27 ft depth to 35 ft; widening from 250 ft to 450 ft; replacing movable bridges with high-level fixed structures; construction of a cutoff for Pennsylvania Railroad tracks near Reedy Pt., Delaware; and correction of bends so that they will have a minimum curvature radius of 7,000 ft.



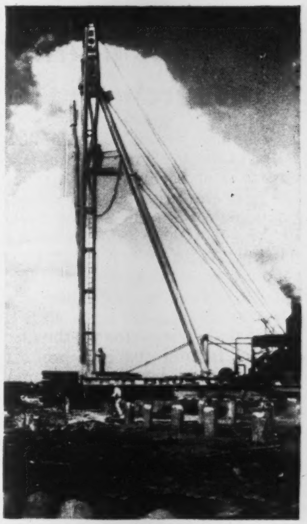
BEFORE CONSTRUCTION could begin, 500,000 cu yd fill were needed.

Freeport sulphur plant marks new frontier

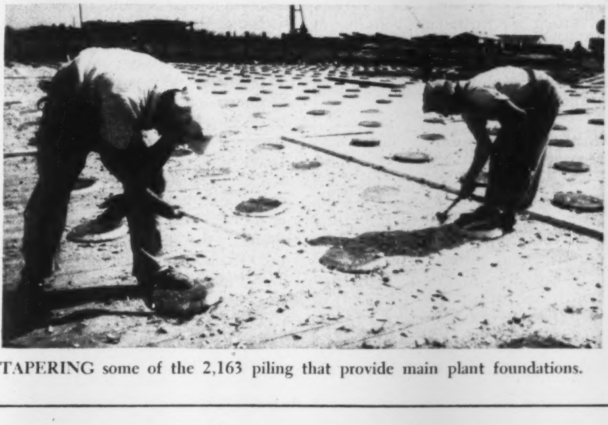
In the soft marshland down where the Mississippi empties into the Gulf of Mexico, Freeport Sulphur Co. is blazing new frontiers. It is building the world's largest single sulphur development in 20 years at Garden Bay, Louisiana, to mine 500,000 long tons of sulphur a year.

Scheduled to be in production late next year, the new plant is part of Freeport's $20-million development program in the area (ENR Oct. 9, p. 25). Estimated costs for this installation are between $10 and $15 million.

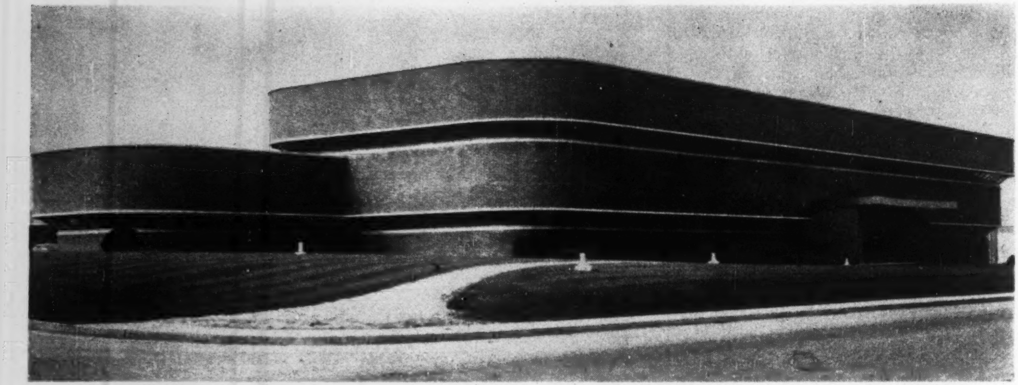
Before construction could begin, 500,000 cu yd of fill were required for the plant site. To provide plant foundations, fir pilings 85 to 90 ft long were driven. The main plant alone required 2,163 pilings capped by a wooden floor. The floor will be covered by a 16-in concrete mat which in turn will serve as support for a series of concrete cells. Atop these cells—16 ft above mean Gulf level—the main floor will be built.



FIR PILINGS go down 90 ft.



TAPERING some of the 2,163 piling that provide main plant foundations.



OFFICE BUILDING for Springs Cotton Mills in Ft. Mill, S. C., is built like an inverted pyramid; upper floors overhang lower.

Hung walls permit slanting windows for research and office building

To eliminate reflections, minimize direct rays from the sun and yet obtain a maximum of daylight illumination, windows in the new research and office building for Springs Cotton Mills in Ft. Mill, S. C., are slanted outward at 45 deg. As a result, the wall construction differs from that used for ordinary building of skeleton-frame construction.

The second floor overhangs the first floor by 4 ft, and the roof projects the same distance beyond the second floor. The break in the exterior wall occurs at the window-sill line which is continuous around the perimeter.

It, therefore, was necessary to hang the spandrel walls from the beams above, which in turn, had to be carried by cantilevers.

The building is faced on all elevations with red brick and limestone trim.

Radial brick is used for the corners, which are turned on a radius of 12 ft in the first story and 16 ft in the second story. The continuous windows are of the aluminum-pivoted type with double glazing.

• Multi-purpose building—The structure provides both executive offices and research and testing facilities for the textile company. T-shape in plan, it has a 208x63-ft, two-story office section at the front and the pilot mill, laboratories and cotton-classifying section in the stem of the T. This rear section is one story high, 270x83 ft in plan, but is designed to carry a future second story. It has a structural steel frame, whereas the office section is of reinforced concrete construction.

Various types of floor finishes are used over the concrete floors. Teak is used in the office section, walnut in the directors' room, oak in the cotton department, maple in the pilot mill and research laboratories, and slate in the lobby.

Radiant heating and air conditioning are employed in the building. The laboratory is refrigerated and the pilot mill has the same humidifiers as the main plant, so that carding, spinning and weaving operations can be carried out under standard mill conditions. Exterior walls are insulated with Foamglas applied to the interior face of the masonry. Radiant heating piping is placed along these walls.

An unusual feature is the hydraulic elevator in the president's office. It raises a portion of the floor to form an extension of his desk, thus raising the capacity of his furniture to 18 persons for a directors' meeting. It is operated from a control panel on the desk which also can open and close draperies and actuate chart panels, a television set, doors, dictating machines, ozone supply, ultra-violet lights and moving picture and stereoptican projectors.

Rober & Co., of Atlanta, Ga., was the architect. George A. Fuller Co. was the general contractor. The owner was represented by E. L. Scruggs, vice-president and chief engineer.

Judge upholds West Virginia Turnpike

The controversy which has delayed building of the 88-mi West Virginia Turnpike for three months came to an abrupt end last week and construction is expected to resume immediately.

Judge Ben Moore, who presided in the U. S. District Court of Southern West Virgina, ruled:

- That the West Virginia Turnpike Commission has acted in compliance with the Turnpike Act in planning a two-lane highway, with a third lane on steep grades.
- That the Guaranty Trust Co. of New York, holder of $96 million worth of bonds sold by the commission to finance the turnpike, has the legal right to compel the commission to go ahead with construction according to the terms of the trust agreement.

His ruling, in effect, threw out a ruling Sept. 12 by State Attorney General John G. Fox who said the Turnpike Commission had not followed the intent of the act which authorized construction of a "four-lane divided highway." On the strength of Fox's ruling, Gov. Okey Patteson ordered project work halted.

Suit to resume construction was brought by the Guaranty Trust Co. (ENR Nov. 13, p. 26). In his opinion, Judge Moore stated:

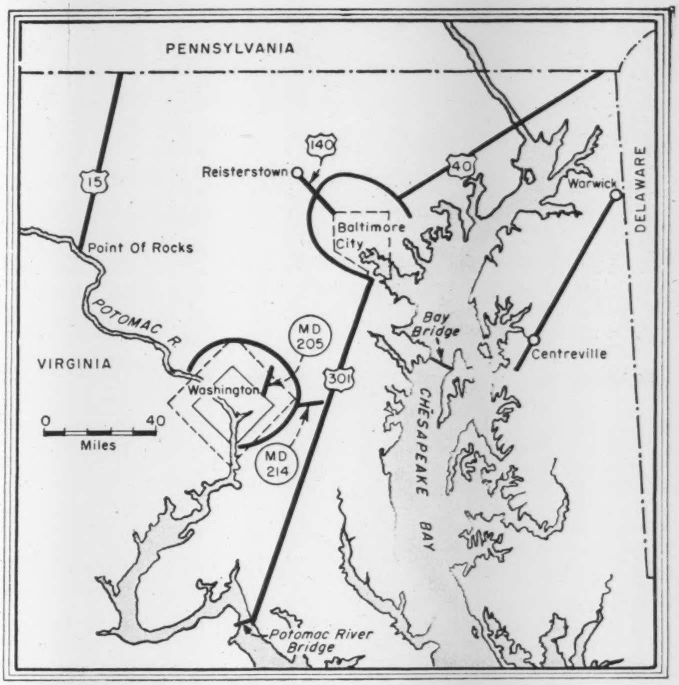
"If the commission should find that immediate construction of a four-lane turnpike could be financed by revenue bonds, then the financing and building of an inferior type of roadway might well be deemed an abuse of that discretion.

"On the other hand, if the commission should find that a four-lane turnpike would never be financed by revenue bonds, then doubtless its discretion would be soundly exercised in building any turnpike which could be financed and which would embody as many safety features as could be provided without endangering the financing itself. . . ."

$568-million road plan urged for Maryland

An advisory committee to the Mary-State Roads Commission came out last week with recommendations for a 12-year program (beginning in 1954) calling for 3,450 miles of new construction or reconstruction of state roads. The cost is to be $568 million.

The report listed as major projects (see map): (1) a dual roadway circumferential route around Baltimore; (2) a dual roadway circumferential route around Washington, D. C.; (3) a new dual highway replacing U. S. Route 15 from the Potomac River at Point-of-Rocks to the Pennsylvania border; (4) a new dual highway replacing U.S. Route 140 from Baltimore northwest to Reisterstown; (5) a new dual highway replacing Maryland Route 205 from U.S. Route 50 to Maryland Route 430 in the Washington metropolitan area; (6) a new dual highway replacing Maryland Route 214 from Washington to U.S. Route 301; (7) a dual highway from Baltimore to the Pennsylvania line, roughly paralleling the present U. S. Route 301; (8) a dual highway from Glen Burnie south of Baltimore to the Potomac River at the Virginia state line and (9) one half lane of an eventual dual highway from Centreville to Warwick to link the Chesapeake Bay Bridge and the Delaware border, tying in with the New Jersey Turnpike.



The estimated highway needs are based on projected traffic volume gains and allow for population and vehicle increases. Estimated costs are based on present prices.

• **How to pay for it**—The committee estimated that revenue available from present sources and at present rates for the 12 years is $256 million. An additional $312 million would therefore be needed.

To obtain the added funds, the group suggested:

- Raising the existing 5-cent state gasoline tax to 6 cents by June 1, 1953.
- Increasing motor vehicle registration fees effective in 1954.
- Issuing $330 million in additional state highway construction bonds.

These increases allow for money that must be spent to pay off the bonds and the portion of gas tax and registration fees that goes to Baltimore and the 23 counties under the present state system.

Toll roads were given lengthy consideration, but no revenue from this source was included in the 12-year financial plan. The report says studies indicate no entirely new road could be built as a completely self-liquidating revenue bond project.

The studies did indicate that several now partially built roads could be completed as toll highways and that approximately $50 million of the construction program might be financed that way.

The program envisions improvements on farm-to-market roads of between $120 million and $160 million out of the tax and registration fees.

The program is divided into three 4-year stages and provision is made for frequent review to determine whether priority ratings for improvements should be revised. Recommendations were given to the legislative council, which will make its recommendations to the 1953 general assembly which meets in January.

The study and report were the work of the roads commission, Russell H. McCain, chairman; Avery W. Hall and David M. Nichols, commissioners. The advisory council, Abel Wolman, chairman; E. Asbury Davis and Charles S. Garland, members; and the staff of the roads commission and outside consulting engineers.

• **New York commission**—Governor Dewey last week appointed Charles H. Diefendorf of Buffalo, president of the Marine Trust Co. of Western New York and of the Marine Midland Corp., to serve as chairman of the New York State temporary Highway Finance Planning Commission.

The commission will report to the governor and the state legislature by February, recommending a long-range plan for financing the rehabilitation and development of the state's highway system.

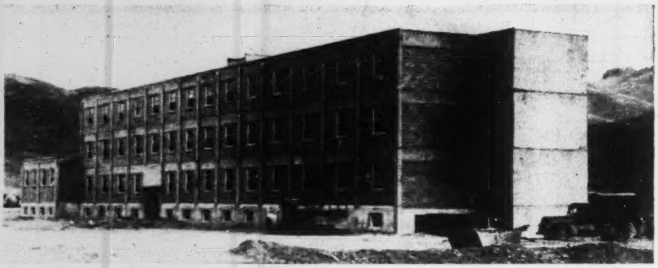
Bid shopping split

Electrical contractors this week called off initial committee efforts to get together with the general contractors on the problem of bid shopping.

Committees representing the two groups—nine members from the Associated General Contractors and eight from the National Electrical Contractors Association—met in Washington Nov. 11 (ENR Oct. 30, p. 23). The meeting produced no compromise on the issue of national legislation to regulate subcontractor bids on federal work. It ended with a request from the AGC that NECA cooperate in establishing a joint committee to study means of eliminating bid shopping and bid peddling on private work.

NECA this week rejected the proposal.

In a letter to the AGC, president D. B. Clayton, Sr., of NECA touched upon the basic fear of the electrical contractors that the existence of such a joint committee would be used as an argument against federal legislation at the next session of Congress.



AUSTERITY BARRACKS—One of fourteen 200-man barracks built this season at Ft. Richardson, Anchorage, Alaska. Contractor was J. H. Pomeroy, San Francisco. The architect engineer: Pietro Belluschi.

Alaskan lump-sum program successful

As the outdoor construction season in Alaska ended last week, Army engineers expressed satisfaction with the effectiveness of lump-sum contracting there since 1949, when the change-over was made from cost-plus-fixed-fee contracts.

The engineers were speaking to a group of U. S. journalists who visited military installations in the Anchorage and Fairbanks areas.

At present the Army Engineers have 114 active lump-sum contracts in Alaska. These are held by 45 contractors, almost all of whom came from the States. In CPFF days there were only three contractors.

Alaska has been the scene of heavy defense construction activity in most of the postwar period. There has been no need for "crash" programs such as the one in Morocco, so lump-sum work has been possible. Annual expenditures have run about $200 million, and are expected to continue at this rate for a few more years.

At Anchorage and Fairbanks, annual programs consist largely of building up existing installations and completing a change-over from temporary to permanent construction. Anchorage installations are Fort Richardson, an infantry post, and Elmendorf Air Force Base. At Fairbanks, Ladd Air Force Base is on the edge of town and Eielson AFB is 25 miles away.

During the 1952 construction season, schedules have been met in timber and reinforced concrete construction, but there have been delays in steel construction and work involving mechanical equipment. These delays resulted from the summer's steel strike, with an ensuing West Coast shipping strike. Transportation is a big factor in Alaskan construction, affecting both the timing of work and its cost.

One ship delayed by the maritime strike carried critical items for more than 20 different contracts.

Despite delays, however, a large number of new houses and barracks was ready for occupancy Nov. 1. Supporting heat and power plants at Fort Richardson and Eielson Air Force Base are scheduled to go into service Nov. 10 and Dec. 1, respectively. Meanwhile, temporary diesel and boiler plants serve the buildings.

• Expediting critical items—Getting the power plants into operation before real winter sets in involved three-way cooperation among contractors, the Army Engineers and the Air Force. Some switch gear items for the plants were not ready at the factory in Pittsburgh until the end of October. Ordinarily delivery at Anchorage could not be expected for less than a month later. But the items were put in "flying box-car" Air Force transports and flown to their construction sites in two days. Army Engineers took contract credits for the regular transportation costs that the contractors otherwise would have had to pay.

• Buildings simplified—Designs for Alaskan barracks built in 1952 were prepared under what the Army Engineers call their "austerity program." Man-space criteria are lower than in the past; roofs are flat instead of pitched; walls are concrete block instead of reinforced concrete. Frills are gone. Savings of as much as two-thirds of the cost of former comparable facilities are claimed. Most of the savings are attributed to the severe designs but some of them come from contractor competition and decreased costs of doing construction business in Alaska. An example of the new-type barracks is shown.

The Alaska District, under Col. Louis H. Foote, District Engineer, also has major work at Whittier—an all-weather port near Anchorage—as well as other work at numerous minor sites throughout the territory.

GM contest seeks road muddle solution

As a part of a concerted drive by many interests to encourage public recognition of the serious lack of adequate public roads facilities, General Motors Corp. last week announced the opening of a nationwide essay contest. Participants are asked to suggest solutions for the highway problem.

The contest—which will involve a series of prizes totaling $194,000—is entirely a General Motors promotion, but it is in line with the months-old "Project Adequate Roads" (ENR Mar. 13, 1952, p. 33) in which some 40 organizations representing both public and private interests projected campaigns to call public attention to the need for enlightened action that should be taken on the U. S. highway problem.

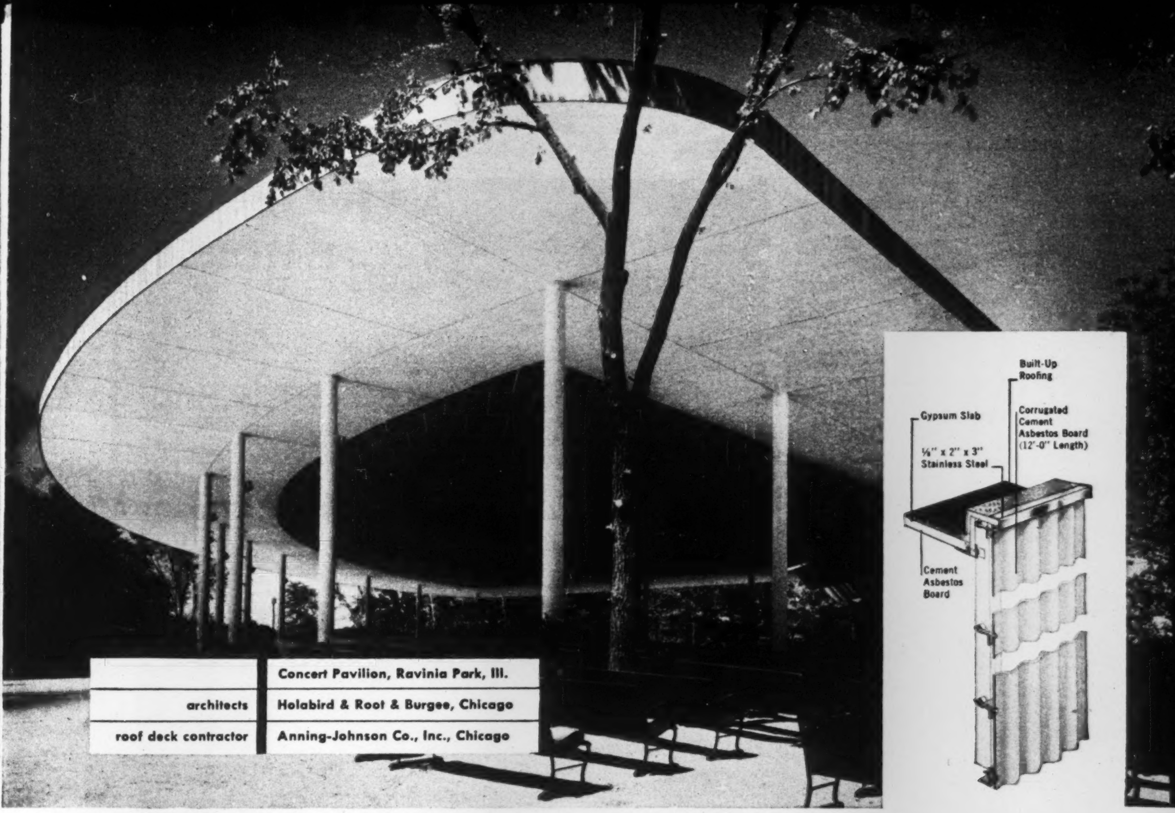
Announcing the opening of the contest at Detroit, C.E. Wilson, GM president, said the "Better Highways Awards Contest" was aimed at "getting millions of our people thinking and asking questions about the current highway problem. And we hope it will help answer problems of financing, planning and administration that are involved."

• Rules—Open to all residents of the United States (except contest judges), the contest will offer 162 cash prizes, topped by a $25,000 first place national award; a $10,000 second place national award; $5,000 third place national award, and three $3,000 national honorable mention prizes. Additionally, first place winners in each of the 48 states (plus the District of Columbia) will get $1,500 each, and lesser prizes of $500 to individuals will be given for honorable mentions in each state.

Contest subject will be "How to plan and pay for safe and adequate roads we need." Essays will not be judged on literary merit, but rather on originality, sincerity and practical adaptability. No limitation is placed on length, and any necessary supporting data may be supplied to accompany the entry.

Entry blanks are available at GM dealers, or from company headquarters at Detroit.

Contest judges include: Ned H. Dearborn, president of the National Safety Council; Thomas H. MacDonald, Commissioner, Bureau of Public Roads; Curtis W. McGraw, chairman of the board, McGraw-Hill Publishing Co.; Bertram D. Tallamy, superintendent of the New York State Department of Public Works and president, American Association of State Highway Officials.



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Cement Asbestos Board

	Concert Pavilion, Ravinia Park, Ill.
architects	**Holabird & Root & Burgee, Chicago**
roof deck contractor	**Anning-Johnson Co., Inc., Chicago**

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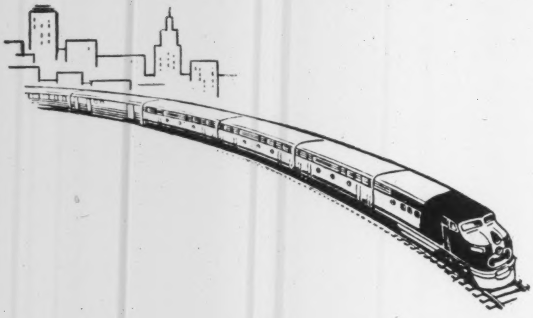

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Supreme Court hears Ledbetter case

Last week the justices of the U. S. Supreme Court heard the dispute between the Montgomery, Ala., Building Trades Council and the Ledbetter Erection Co. (ENR July 3, p. 52). In about a month, according to regular practice, the justices will accept one set of arguments and cast aside the other set.

At issue: Does a state court have the right to enjoin unfair labor practices described in the Taft-Hartley Act? If it does, can an employer take his case to a state court instead of to the National Labor Relations Board?

The case developed when union employees of Ledbetter refused to cross picket lines set up around their construction project. The building trades' picketing was directed against the nonunionized company which had subcontracted part of the job to Ledbetter. An Alabama state court granted a temporary injunction to Ledbetter against the strike. What began as a purely local dispute now occupies national attention because the decision is going to affect national administration of the Taft-Hartley law and probably will even reach into Congress.

• **Union side**—Herbert S. Thatcher, representing the Building Trades Council, told the court that the whole statutory scheme of the Taft-Hartley law had been violated by the Alabama courts in granting the injunction. He said widespread confusion would result if the court did not reverse the injunction. Thatcher said litigants always would take advantage of state court relief, without ever going first to NLRB.

Counsel for the NLRB also urged the justices to reverse the state court. He said they could do so by holding that Congress has preempted control of employer rights under the act just as it has preempted control over employee rights (which the high court has already ruled). NLRB counsel argued that by outlawing secondary boycott strikes, Congress intended to set a policy to be administered by the board and the federal courts.

• **Ledbetter side**—Jack Crenshaw, who has handled the Ledbetter side all the way, pleaded with the court to sustain the Alabama ruling. He said his client's business did not affect interstate commerce to the extent arbitrarily set up by NLRB before it will take action in labor disputes. Crenshaw said that since the board won't take such cases, and if state courts aren't allowed to take them, his client is left without any relief at all.

Crenshaw also made the point that any findings that the 80th Congress, which passed Taft-Hartley, intended to enlarge the rights of labor, and increase bureaucratic control, is against plain congressional intention.

Crenshaw said this to rebut Thacher's arguments that a recent amendment to T-H makes clear that only the board, not private parties, can seek injunctive relief.

• **Court**—The justices took an active part in the arguments, often challenging counsel for the union and the labor board. Justice Jackson and Frankfurter seemed especially concerned about the jurisdictional question. They pointed out that even if they decide to reverse the Alabama ruling, the state court can uphold the injunction on state law grounds.

Justice Reed wanted to know what happened to an employer when the NLRB decided his complaint was purely a local one and refused to seek injunction relief.

Strike averted at Savannah H-Plant

Technical engineers, who previously had stalled work on the Savannah River hydrogen bomb plant in South Carolina, called off a strike scheduled for early this week.

The first major labor dispute at the South Carolina construction site was touched off by the firing of six men who are members of the American Federation of Technical Engineers, AFL.

The strike was originally called against a sub-contractor—Miller Electrical Co., of Jacksonville, Fla. The prime contractor—the du Pont Co.—was not directly involved in the dispute.

The picket lines thrown up by the Technical Engineers stopped 37,000 men from entering the construction site and halted, for one day, work on the $1-billion project.

The Technical Engineers called off the threatened picket lines after entering a formal complaint against the Miller Electrical Co. at the offices of the National Labor Relations Board.

Russell Stephens, president of the union, said he expected an investigator from NLRB to study the situation this week.

A Miller Electrical spokesman said that five of the men had been fired in a work force reduction and another had been fired for absenteeism. The Technical Engineers complained that the men had been fired for union activity.

• **Technical engineers**—The AFTE has been in existence since 1918. The membership is open to all categories of engineers in all grades permitted by the labor laws. (Generally the laws exclude those in "hire-fire" grades except in the case of government employees who are not subject to collective bargaining.)

The union is mainly operative in the manufacturing industries, having contracts with five General Electric plants and the RCA plant at Camden, among others.

In construction AFTE has contracts with Stone & Webster, in Boston; with Bethlehem Steel; with George Fuller Co.; with Walsh-Healy Construction Co.; and other large firms.

The union has had few strikes.

United Construction Workers lose court fight to NLRB

The Supreme Court last week backed up the National Labor Relations Board in its fight against organizing tactics of the United Mine Workers' District 50 and an affiliate, the United Construction Workers, in West Virginia coal fields.

The unions had asked the court to review a Board order directing UMW and District 50 to stop secondary boycott picketing against mines of the Carbon Coal Co. The picket lines had been used to further union attempts at organizing employees of lumber companies supplying the mines with construction timber.

But the Supreme Court refused to hear the appeal. The action exhausted the last opportunity of the unions to have set aside a ruling by the U. S. District Court of Appeals in Richmond enforcing the NLRB order.

NLRB action followed formal protests by the Kanawha Coal Operator's Association last year.

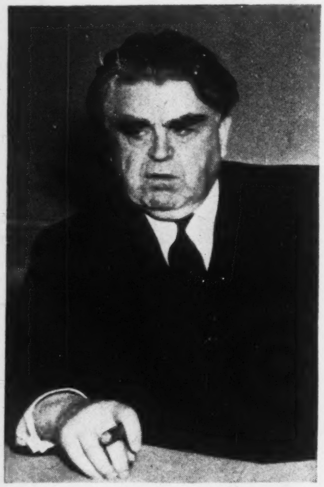
After signing a closed-shop agreement with the Central West Virginia Lumberman's Association, UMW began organizational activities among employees of the lumbermen. Union agents also told self-employed timbermen they would have to join both the union and the association before their trucks would be permitted to haul timber to the mines.

Striking employees of one lumber company were directed by the union to go to the mines of the Carbon company to encourage the miners not to use scab timber. Three of Carbon's mines were picketed by these strikers.

Miners at one mine went on strike because the lumber pickets asked them to stop work. Picket lines were set up around the mine entrances before timber trucks appeared and remained there after the trucks had left.

• **Banned by Taft-Hartley**—The labor board found that by picketing at the mines to stop the lumber trucks—instead of at the lumber mills where their dispute actually was centered—United and District 50 violated the secondary boycott ban in T-H.

As a result, the Board ruled the picketing was directed at (1) forcing the coal company to stop doing business with the lumber companies, (2) forcing lumbermen, as self-employed persons to join the union, and as employers to join the employer association, and (3) forcing the lumbermen to recognize and bargain with the union despite the fact that it had not been certified.



JOHN L. LEWIS' District 50 construction workers union was set back by ruling.

Striking for these objectives is unlawful under Taft-Hartley.

Basis for the appeal to the Supreme Court was that the NLRB order was too broad to be enforced. In prior proceedings, the unions had attempted to limit the cease-and-desist order to one particular union region in West Virginia in which the three Carbon mines had been picketed.

Both NLRB and the district court refused to restrict the order. The district court said it could not support the union "in view of the wide background of violence and intimidation" of the organizational program.

Former union head sues AFL for $250,000 damages

Roy J. Underwood, deposed head of Local 542, International Union of Operating Engineers, AFL (ENR Nov. 6, p. 31) has filed suit in Philadelphia, Pa., for $250,000 in damages against the international union and its president, William E. Maloney.

Underwood led the local in a 110-day strike last summer when more than $100-million worth of heavy construction was held up.

Underwood recently was fined $3,500 by the union's executive board, removed from office as president and business manager of the local and his membership was suspended for six years.

The deposed union leader asked the court to reverse the decision of the executive board. He also asked the court to restrain the international union from interfering with his conduct of the local's affairs.

In asking for damages Underwood said he will lose "valuable property rights . . . his interest in the assets of Local 542 and his rights to benefits of various funds and projects." His reputation has been "irreparably damaged" and his earning capacity placed in jeopardy.

Toward the close of the strike the international directed Underwood to end the dispute and accept the terms offered by the employers. Underwood refused and filed a suit against the international, charging a conspiracy to defraud the members. The case was settled out of court.

GE's Buechel plant struck in jurisdictional fight

A jurisdictional dispute between millwrights and ironworkers resulted in a stoppage of all construction work on the General Electric Co.'s Buechel, Ky., plant last week.

An official of the Turner-Struck Construction Co., prime contractor on the job, said that all 2,500 construction workers walked out.

The dispute—over the installation of conveyor equipment—is between about 400 carpenters and millwrights and the ironworkers.

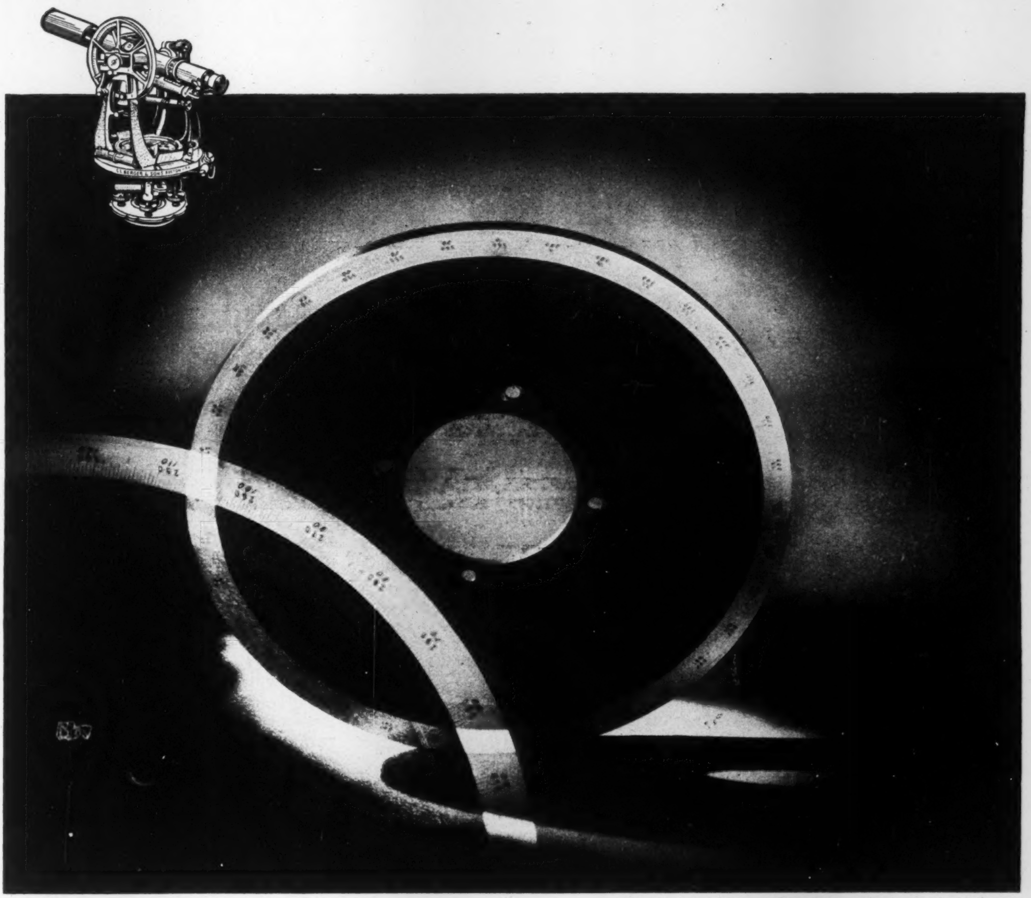
Ted Pitts, business agent for the Falls Cities Carpenters District Council, said the millwrights are not on strike—they just "decided to take a little fishing trip."

A. J. Smith, president of the Louisville Building and Construction Trades Council, said last week that "no one seems to know" why the other workers walked out.

Plasterers and masons form state conference

Delegates representing over 2,500 plasterers and cement masons from seven Michigan cities met last Friday in Lansing and established a permanent state-wide conference for the purpose of advancing "mutual benefit, protection, education and close cooperation of all state locals."

The organization—Michigan State Conference of Plasterers and Cement Masons, AFL—is similar to other state organizations that have appeared across the country recently.



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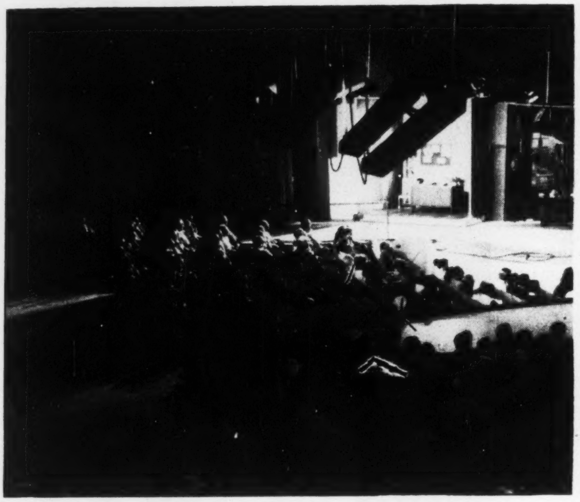
A look at CBS' $12-million TV studio in Los Angeles



LARGE STUDIO has depressed audience seating and room for many sets. Audience gets full view, technicians are unimpeded.

LAST SATURDAY (Nov. 15) an hour-long star-studded telecast marked the official opening of a $12-million Los Angeles television center for the Columbia Broadcasting System. One of the first of its kind in the new industry, the center is bound to set precedents and influence patterns for others to come.

The facility went into partial operation on schedule early last month with the first network telecast on October 3. But full operation and the official opening was delayed until last Saturday.

In planning the work, both CBS and its architects—Pereira & Luckman—established two basic concepts—provision for expandability in size and flexibility of use.

• **Flexibility**—Television requires spacious areas and this, to a considerable degree, provides the means for flexibility.

The four studios in the new plant are each 130x110 ft. Some of this area is taken up by such elements as control rooms, but the net 12,000 sq ft of stage area provides more space than has heretofore been available on any television stage. This means that many settings for program action can be placed on one stage.

Moreover, if smaller studios are needed, a partition bisecting the area gives one studio 55x110 ft that could be served by the existing control room. The remaining space can again be bisected by a second partition into two 55x55-ft studios.

Two of these four studios will accommodate audiences of 350. Here again, television as an art has not reached its ultimate pattern. The suspicion among observers is that eventually there will be no live audiences at all.

The audience seating is depressed below the floor level for two reasons: (1) to minimize interference with line of sight from the control booth and from television cameras located in the studio at the audience position (a floor-level platform extends into the audience for location of such cameras.); (2) the seating area can thus be used as added stage space, or for seats if audiences are found necessary or desirable.

• **Expandability**—As in any young industry, expandibility is necessary for future growth. A plan had to be developed for the initial construction that could be integrated into a larger installation with little loss of efficiency.

The present arrangement involves two buildings: One has four studios on its main floor, three rehearsal studios on an upper floor and miscellaneous service units in the basement; the second is primarily a crafts building, but for the time being also houses the office area. This three-story building ultimately will be enlarged to a six-story development entirely for service crafts. A separate height-limit building will be built for administration.

At present, the four studios are located west of the crafts building. These can be expanded to a twelve-studio unit and, if necessary, an additional twelve-studio unit can be built east of the crafts building. This would mean that the central crafts building would be easily available to the studio building on each side.

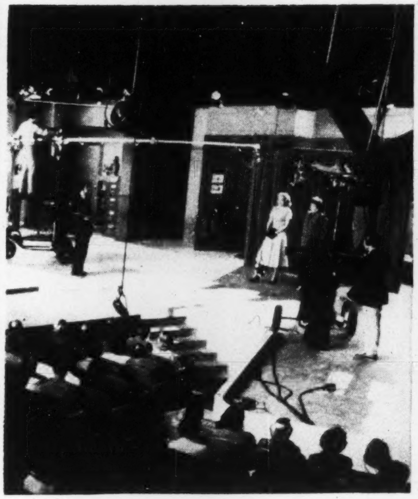
• **Structural design**—This type of future expansion raises some structural problems. Every wall where expansion can take place is of a relatively temporary nature. Accordingly, these walls cannot be used as shear walls to resist lateral forces induced by siesmic loading. And the large spans have portal framing impracticable for lateral load resistance. So the designer used such permanent walls as were available to resist lateral shear.

Since the two-story studio building and the three-story crafts building have different vibration characteristics, the two are separated by a 5-in. dead air space to prevent damage due to differential movement during an earthquake. That permits the wall on either side to be used for lateral force resistance. Many of the "temporary" walls are insulated cellular steel panels bolted to the structural frame. These are entirely adequate and could serve indefinitely. However, when expansion is desired they can be removed simply by unbolting them.

Other walls (specifically in the north exposure of the crafts building) are made almost entirely of glass window units. These, too, can be dismantled and re-used.

• **Construction problems**—The studios have 30-ft high reinforced concrete walls, 10 in. thick with 24x24-in. concrete columns to support the steel roof trusses. Pouring these free-standing walls within the alignment tolerances required by the trusses was a real problem. It was accomplished in two 15-ft lifts with special bracing for the supporting steel scaffolding.

For the first 15-ft lift, conventional 8-ft wide steel scaffolding was used



on one side of the wall. The other was braced with diagonal timbers at 6-ft intervals.

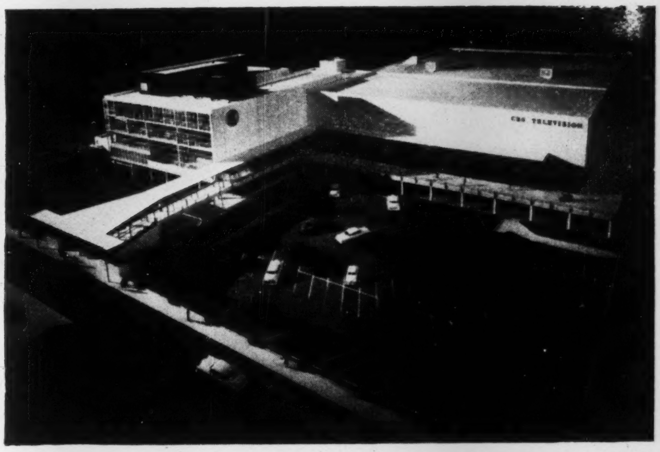
But the second 15-ft lift presented greater difficulty. A 6x8-in. timber was run longitudinally near the outside of the steel scaffolding at the 15-ft level. Diagonal timbers on 6-ft centers braced between the plywood faced-forms and the 6x8-in. stringer. This served to brace the assembly laterally with a high degree of accuracy.

• **Fireproofing beams**—The steel-frame crafts building included concrete shear walls. A newly developed method was used to fireproof the beams which ranged in length up to 40 ft and were as much as 23 ft above the floor level. Prefabricated wood forms were raised to the beams by use of hand winches mounted on the beams. Rods of ¼-in. dia spaced on 32-in. centers and fastened to the soffit form were bent over the I-beams to support the forms. The rods had been pre-bent at the proper height by a special bending tool. Another tool bent them under the beam flange for better support.

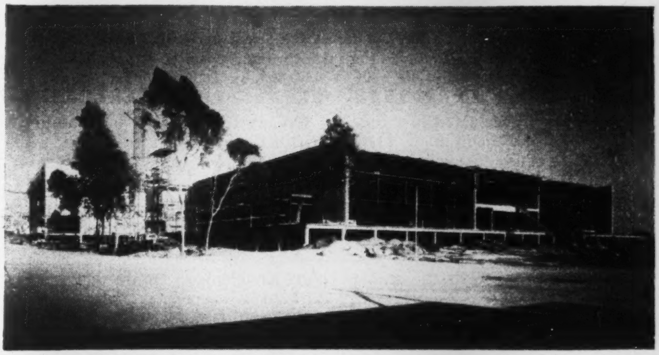
After the beam forms were in place the column forms were set. Column and beam fireproofing were poured together.

The form-raising crew took about five minutes to raise a set of forms. One raising crew easily kept ahead of a crew of 12 carpenters. Biggest form raised was 4 ft high, 20 in. wide and 40 ft long. Four winches were required.

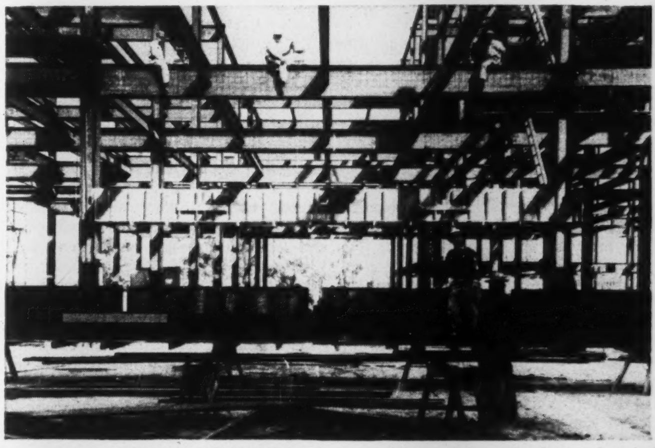
• **Electrical**—Transmitting of television programs is largely an electronic operation. Thus, the electrical system is of paramount importance. Techni-



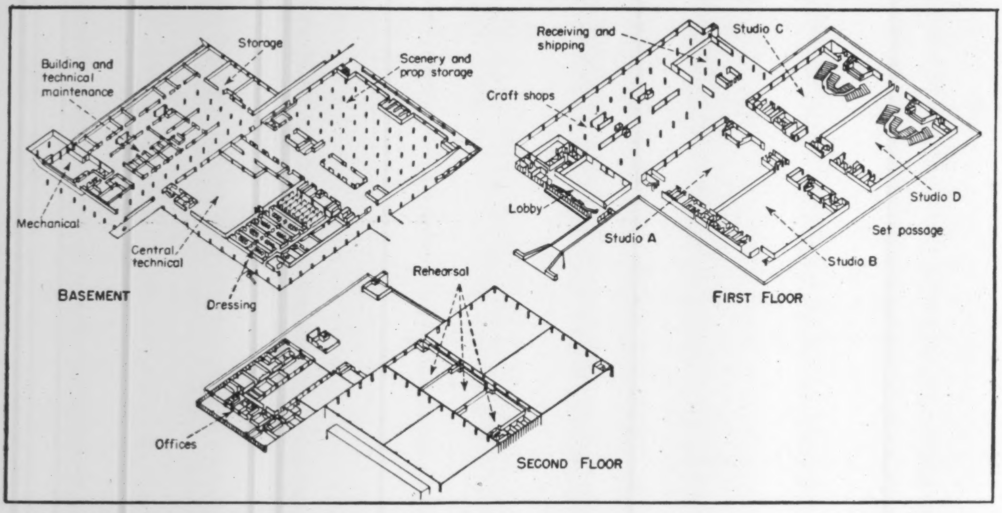
TELEVISION STUDIO BUILDING (right) is served by office and crafts building (left). Four-studio unit can be expanded horizontally and service building vertically.



FREE STANDING WALLS, 30-ft high, were carefully aligned and braced during pouring to keep within roof bolt setting tolerances. Bracing involved longitudinal and diagonal timbers in steel scaffolding.



WORKMEN WITH HAND WINCHES raise prefabricated forms for fireproofing steel girders. Rods, ¼-in. dia, bent over the beams, support forms during pouring.



FLOOR PLANS were carefully laid out for most efficient operation. Actors can travel directly from their parking lot to basement dressing rooms and then by elevator to the studios without contacting the public, for whom there are separate entrances to the first-floor studios. Scenery and props are built in the adjoining crafts building and shifted horizontally into the studios.

cal features are concentrated in a central area in the basement floor. Here the electronics equipment required for putting the show together and relaying it to the transmitter is concentrated. These techniques are fairly well established, so this area is expected to be permanent.

But electrical service to the studio area is another matter. Ample extra capacity in all wireways has been provided for expected future development. Beside that, wireways have been attached permanently to the battens (the movable framework to which scenery and lights are attached). Adjustment in lighting arrangements are made with battens lowered.

The advent of color TV introduces another requirement for flexibility in lighting of the studios. It is expected that perhaps five times as much light will be required for color TV than for black and white. And facilities are provided for it.

Memory-type lighting control boards are being installed. These will permit lighting changes to be set in advance for as many as ten different scenes.

• Air conditioning—Production of a television show requires high concentration of light, with consequent heat generation. Thus, requirements for the air conditioning system center around minimizing these peaks of heat load as well as maintaining an average level of temperature control. Solution for this problem was found in two types of movable ducts that can be aimed at spots of high heat generation.

One is a telescoping air-conditioning duct that remains at a level with the lights and is raised and lowered on the battens. In this way the cooled air does not pass over hot lights before reaching floor level.

Besides the telescoping ducts, spot cooling can be afforded by flexible units like elephant trunks that can be directed as needed.

Air conditioning load is figured at 100 tons per studio. Four central units are located on the roof, one for each studio.

• Acoustical—Strange as it may seem, the design of the Los Angeles CBS studios has not developed any new concepts of acoustical treatment. In fact, acoustics is not as important in television work as it is in radio.

Design requirements were that the studios be protected agaist 55-decibel sound intensity from the outside and 40-decibel sound intensity between elements of the studio. This is accomplished by relatively routine means. The ceiling is insulated with rock wool blankets held in place by chicken wire. Floating lath walls are insulated by perforated vegetable fiber acoustical material.

• Coordination—An intriguing element in the project is the interrelation of the various units for the most efficient operation.

In New York City, where CBS has some 18 television studios, the confusion in assembling players, audience and props at one spot is almost indescribable. So, in the Los Angeles installation, much thought has been given to getting these various elements into the studio with minimum waste of time and motion.

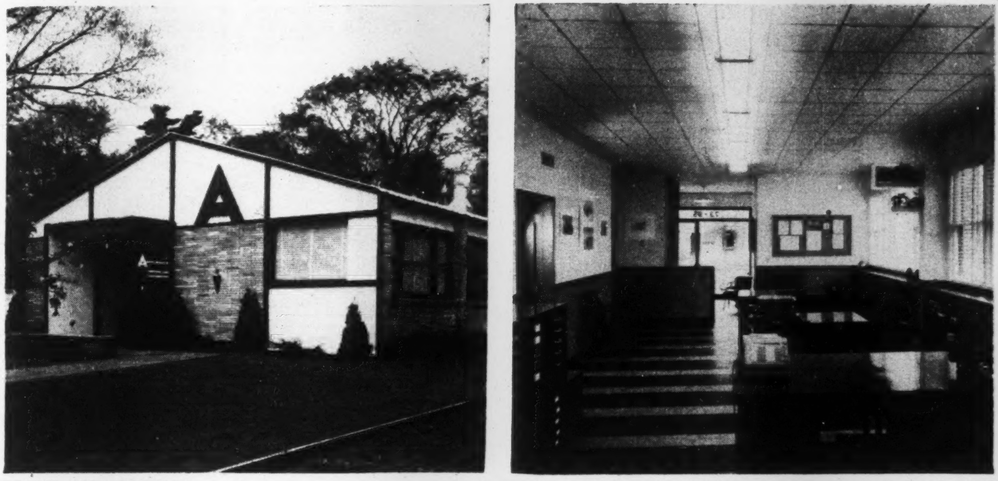
The most expensive things to move are scenery and props. For that reason, these items are to be constructed in the crafts building on the same floor as the studios. Large hallways are available to move them directly from the construction area to the studio area. Also provided is an exterior open-air platform entirely surrounding the studio building. This can be used for moving scenery or as a walkway for players and public.

Storage area for set material is initially in the basement or ground floor level. Large freight elevators will bring these materials directly from the storage area to the studio floor.

These plans were developed under the general supervision of CBS President Frank Stanton and CBS-TV President, J. L. Van Volkenburg. Frank Falknor, vice-president in charge of technical operations, was in direct charge of planning the Los Angeles development. King Tyler was CBS engineer in charge of the planning and construction. Electronic details were supervised by CBS Chief Engineer A. B. Chamberlain.

Architects William Pereira and Charles Luckman of Los Angeles, designed the buildings.

Contractor on the $12-million building program is the Wm. A. Simpson Construction Co., with Jack Ogden as general superintendent.



BRICK AND STUCCO on the exterior, and sheet rock and acoustical tile on the interior, dress up a standardized, steel-frame building for use as a contractor's office in Glens Falls, N. Y.

Standardized building makes smart office

Joseph M. Werblow
V.P. and Chief Engineer
Adirondack Construction Corp.
Glens Falls, N. Y.

HERE'S ONE CONTRACTOR who is happy with his home office. Faced with the need for additional office space, and desirous of locating away from a congested main thoroughfare, the Adirondack Construction Corp. of Glens Falls, N. Y., found a very satisfactory solution in buying a standardized steel-frame building, erecting it on the outskirts of the city and giving it an office building appearance and arrangement.

The site selected adjoins the company's warehouse; so the move had the secondary advantage of consolidating activities in one area. Yet, the property is only one-quarter of a mile from the main thoroughfare.

The building is of rigid-frame construction. One story high, it is 32x84 ft in plan, made up of seven 12-ft bays. (While a 60-ft length was considered ample for office needs, two extra bays were added for storage and shop facilities, as well as to provide for future expansion.)

The roof is aluminum sheet. So is the siding for the two rear bays. Walls for the rest of the building are made of 2x4-in. studs, sheathing and brick facing. For architectural purposes, areas above the windows and several panels at the front were stuccoed. Brick pilasters accent the exterior columns.

Interior finish includes acoustical ceilings, asphalt-tile floors, painted sheet-rock partitions and fluorescent lighting. Partitions are set on column centers, but two columns in the general office are exposed. These were enclosed with sheet rock and the haunch was concealed with hanging flower boxes.

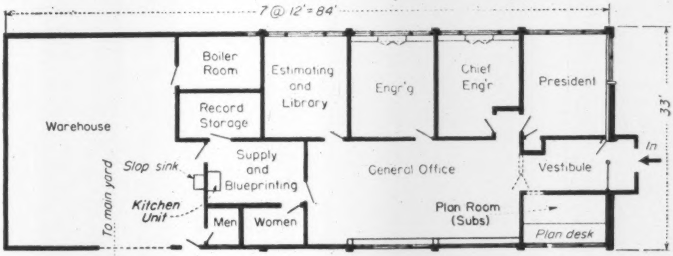
Entrance doors of full plate-glass lights reveal the wall and dwarf partition that separate the entrance from the office. The entrance area, while freely visible, is thus arranged to keep visitors from walking directly into working areas and disturbing the staff.

A take-off room set in this entrance area contains current plans needed for bidding purposes. This room has been well received by subcontractors and again serves to keep the engineering offices free of interference.

Since restaurants are not readily accessible, a combination unit—refrigerator, range and sink—was placed in the rear section of the building to provide luncheon facilities for the staff. The blueprinting machine also was placed there, and a large table serves the dual purpose of dining and cutting table. The record storage room, of fireproof construction, is nearby.

Concrete block walls separate this room from the boiler room, which contains a 20-gal water heater and a combination heating and air-conditioning unit. Cold-air returns are formed by ducts placed beneath the floor, and hot air is distributed by ducts on the ceiling joists. The cold-air ducts also contain conduits for telephone and electrical service Despite the wide diversification of the contractor's activities, the office facilities are highly satisfactory in appearance and in meeting functional requirements.

The building was designed by Samuel Jacobs, company president, and constructed by the company's own forces.



FLOOR PLAN not only provides for staff's working needs but offers a plan room for subcontractors' use and a kitchen for the coffee hour and lunch.

THE CULVERT-PIPE was assembled on a prepared bed of selected granular material. Similar material was placed around the pipes before fill building was begun.

Culvert under high fill is research laboratory

One of three culverts under a high fill in Alabama is being used to determine accurately what pressures actually are exerted on pipe culverts at various points along their length. The fill is on U. S. 31 near Cullman, Ala. It is 144 ft high and the culverts are of corrugated iron, 7 ft in diam.

Because of its unusual height, this fill was selected as a place to check on existing theories as to pressures that develop around culverts.

The pipes are of the bolted multiplate type manufactured by Armco Drainage & Metal Products, Inc., which is financing the test program. Plate thicknesses range from No. 8 ga (0.172 in.) at the outer ends to 8 ga (0.281 in.) at the center, as shown on the drawing. Each pipe is 512 ft long, laid on a slope of 2.5 percent. Pipes are spaced at 20-ft centers.

Prior to laying the pipe, a trench 2 ft below pipe grade and wide enough to accommodate the three pipes was excavated in the valley bottom, which was a mixture of boulders, sand and silt. Then a bed of granular material was spread over the bottom to the correct grade for the culvert and compacted to 100 percent density.

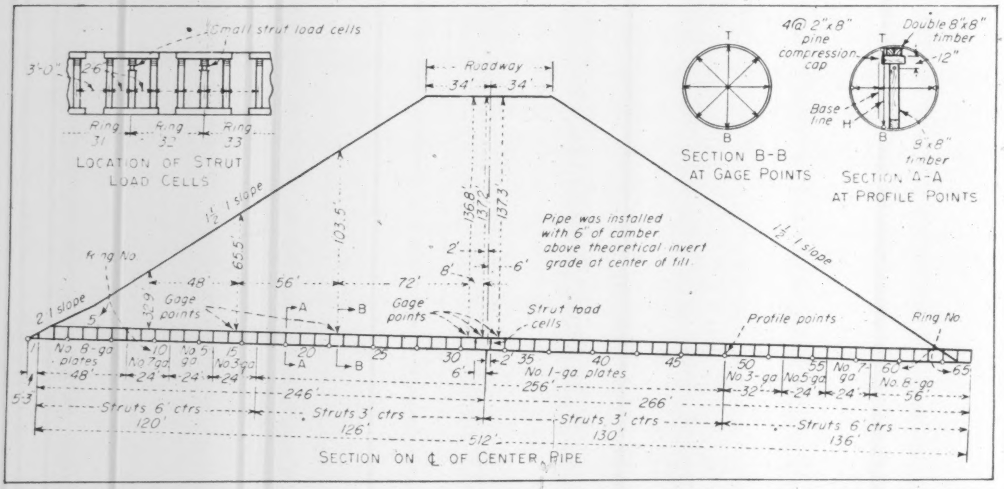
As each pipe was laid, vertical struts, 8 x 8 in., were installed at 3 ft centers in the No. 1-ga pipe and at 6 ft in the other parts. Soft pine blocks were placed on top of each strut in an amount required to compensate for a 3-percent elongation of the vertical axis. Hydraulic jacks were used to deform the pipe.

These compression caps consisted of four 2 x 8-in. strips, laid flat to prevent splitting under load. The struts were left in the pipes until the fill had been built to its full height of 137 ft above the top of the culvert.

Before the main fill building operations began, selected granular material was placed around the pipes and to a depth of 3 ft over the top of the pipes. It was compacted to 100 percent density with sheepsfoot rollers supplemented by air hammers close to the pipe.

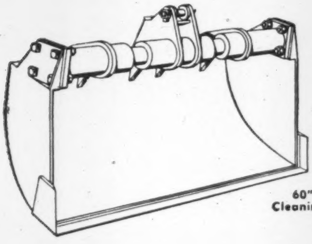
Normal fill was used above that point. It consisted of earth, rock and soft sandstone, spread in layers and rolled.

When the fill was 10 ft deep over the pipes, a power shovel was used to cut a trench 7 ft wide and 7 ft deep over each pipe. In making this cut, the first material was dumped to one side until a short length of trench had been opened, after which material excavated ahead of the shovel

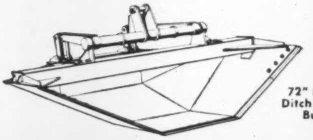


Small strut load cells
3'-0"
2'6"
Ring 31
Ring 32
Ring 33
LOCATION OF STRUT LOAD CELLS
Roadway
34'
34'
1½ : 1 slope
2:1 slope
Ring No.
5
32.9'
65.5'
103.5'
136.8'
137.2'
137.3'
48'
56'
72'
2'
8'
6'
Gage points
A
B
Gage points
Strut load cells
Pipe was installed with 6" of camber above theoretical invert grade at center of fill
Profile points
Ring No.
1
10
15
20
25
30
35
40
45
50
55
60
65
No. 8-ga plates
No. 7 ga
No. 5 ga
No. 3 ga
No. 1-ga plates
No. 3-ga
No. 5 ga
No. 7 ga
No. 8-ga
48'
24'
24'
24'
6'
2'
256'
32'
24'
24'
56'
5.3'
246'
266'
Struts 6' ctrs 120'
Struts 3' ctrs 126'
Struts 3' ctrs 130'
Struts 6' ctrs 136'
512'
SECTION ON ℄ OF CENTER PIPE
T
B
SECTION B-B AT GAGE POINTS
4 @ 2"x8" pine compression cap
Double 8"x8" timber
12"
Base line
H
8"x8" timber
SECTION A-A AT PROFILE POINTS

CROSS-SECTION through the fill showing the weights of pipe used and the gage points. Struts and jacks were used to elongate the vertical axis of each pipe.



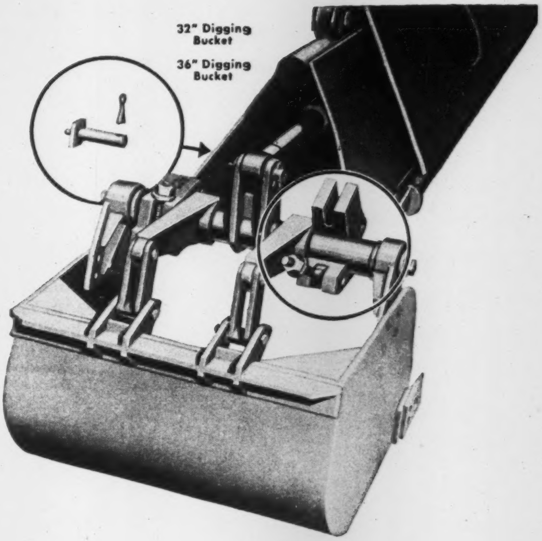
60" Ditch Cleaning Bucket



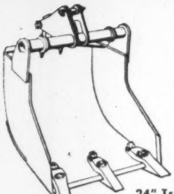
72" Formed Ditch Digging Bucket

32" Digging Bucket

36" Digging Bucket

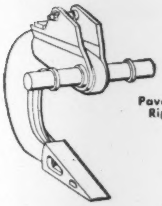


In less time than smoking a cigarette ...your GRADALL is a "new" machine

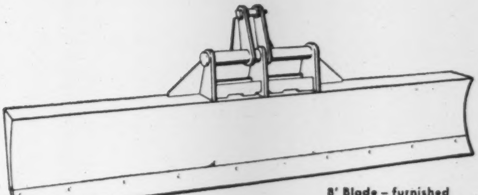


24" Trenching Bucket

15" Self-cleaning Bucket for Wall Footings



Pavement Ripper



8' Blade – furnished with Plain and Serrated Cutting Edges

NOW YOU CAN REPLACE several specialized construction machines, and practically all clean-up labor, with one versatile machine — the Gradall.

Shown are some of the wide variety of tools for the many specialized jobs performed by the Gradall. All can be carried right on the Gradall. And because they can be quickly interchanged, in a matter of minutes you can have a "new" machine for the job at hand—whether it's trenching, excavating, pavement removal, ditch cleaning, grading, or backfilling.

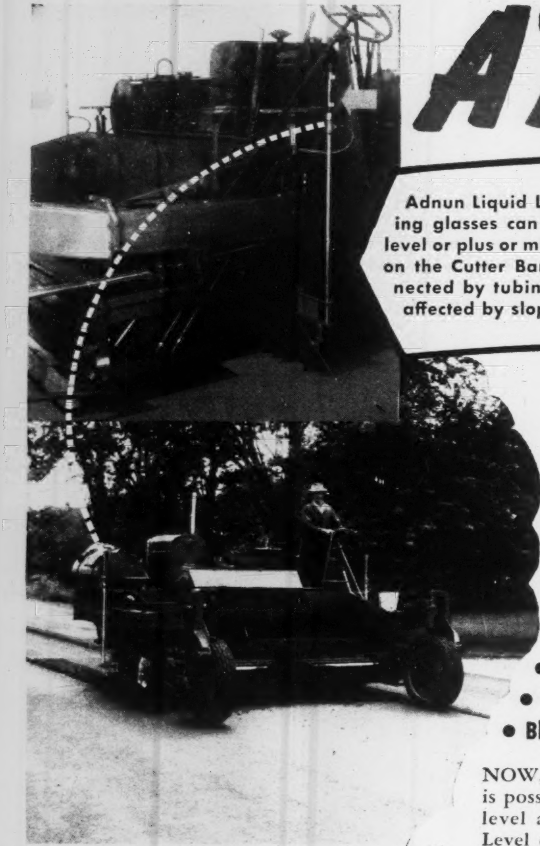
If your construction involves various types of jobs, this should give a good idea of how the Gradall can cut costs for you. Ask your Gradall Distributor for a field demonstration.

Gradall Distributors in over 75 principal cities in the United States and Canada

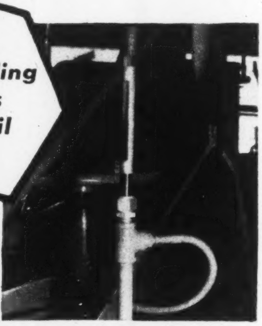
Gradall
DIVISION OF WARNER & SWASEY
Cleveland

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

AT LAST..



Adnun Liquid Level: Vertical reading glasses can be set for absolute level or plus or minus. Being mounted on the Cutter Bar Supports and connected by tubing, liquid is directly affected by slope of Cutter Bar.



Reading Glass Detail

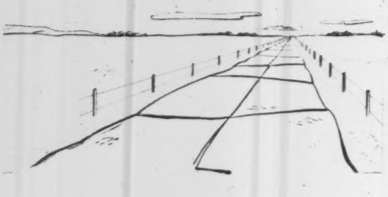
Positive Leveling Control for Black Top Paving!

- **Level up old road perfectly and positively**
- **Correct accurately for any slope at any station**
- **Holds level grade without modifying desired crown**
- **Blend new *level* shoulder into old crown**

NOW, for the first time in the history of black top paving, it is possible to lay a level surface over old road and *hold it* level accurately and positively. The new Adnun Liquid Level combined with the direct lift feature of the Adnun Cutter Bar Screed has made this a certainty. The Adnun Liquid Level permits following fluctuations in grade, visually. Mechanical adjustment on the direct lift Cutter Bar Screed permits instantaneous or gradual corrections to hold the bubble in the level at the desired setting for an absolutely level surface.

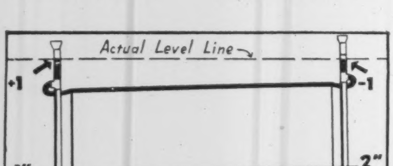
You can bring wavy old roads with reverse slopes to "level". You can build dipping shoulders up to level and blend them into old crown. You can correct, accurately, for any slope at any station.

Only a Black Top Paver with a screed having a straight lift can do this. Adnuns make new roads out of old. They do things other pavers won't do. Remember, the important result is a good road. Ask for details.



Above: Roads of this type are becoming an increasing problem to Highway Departments. They can be leveled with Adnuns.

Below: Diagram of Liquid Level set to lay course 1" at shoulder and 2" at crown. This could be reversed to build up undulating or broken down shoulder.



THE FOOTE COMPANY, INC.
Subsidiary of Blaw-Knox Co.
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BLACK TOP PAVER

A BLAW-KNOX PRODUCT
FROM FORMS TO PAVER TO FINISHER... ALL YOUR PAVING EQUIPMENT
IN ONE PACKAGE from BLAW-KNOX

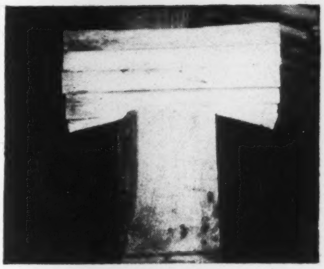
was loosely filled into the trench behind it.

This was done to reduce the vertical load on the pipe and to permit arching to develop over the pipes.

Strain gages were installed in the culvert, at points shown on the drawing. Also gage points were set inside the pipe to measure pipe deformation. Reading on the gages were begun as soon as the 3 ft of selected material had been placed above the pipe. Subsequently, readings were taken at each 10-ft lift in the fill. The pipe profile also was checked. Readings on the gages are being continued, and results are to be published at a later date.

The project was carried out under the direction of H. D. Burnum, division engineer, and M. Curtis Davis, resident engineer, Alabama Highway Department.

Contractor for the culvert installation was the A. L. Crow Construction Co. of Selma, Ala., under the supervision of W. I. Floyd. The fill was built by the Carlton Contracting Co., Albany, Ga., for which Ed Smith was superintendent. The pipe was assembled by Armco Drainage & Metal Products, for whom W. C. Rozier was foreman.



COMPRESSION BLOCKS begin to crush as fill is added above the culverts.

Building links research and display

The Certain-teed Products Corporation, Ardmore, Pa., a leading manufacturer of building materials, has completed a new engineering and research center at nearby Paoli, Pa., that is more than it appears to be.

The structure, in which all product development and testing and plant engineering will be centered, is also a large-scale showplace—a practical exhibition of uses and methods of using the company's building products.

Certain-teed has incorporated in the new building its own standard construction products, such as a steel reinforced gypsum-plank roof deck, a gypsum wallboard rated one-hour fire-resistant by the Underwriters' Laboratories, and glass-fiber acoustical tile. A built up roof tops the gypsum plank. The roof deck insulation is composed of asphalt-impregnated insulation board.

• **Building**—The building is a 141x208-ft, steel-frame, one-story structure. Finished in buff-colored glazed tile from ground level to a height of 4 ft, the building is completely ribboned with 4 ft of steel sash above which is another 4 ft of glazed tile. The floor of the building is concrete covered with asphalt tile.

Suspended ceilings are finished with acoustical tile. All lighting is fluorescent. The interior is air-conditioned. Fire protection is provided throughout the structure by an automatic sprinkler system.

• **Testing equipment**—Included in the new testing equipment are machines which subject roofing and siding products to extreme light, long exposure to moisture, quick or slow drying and other simulated extreme climate conditions in accelerated weather tests. There is, too, a spray booth for experimental paint finishing on acoustical tile and gypsum board products, and a fire-testing booth.

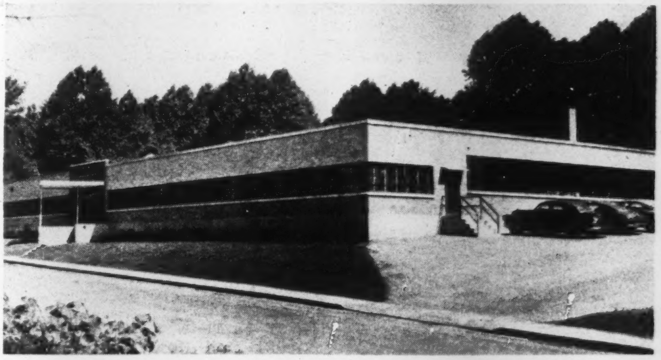
Equipment also includes a humidity room for testing fiberboard, gypsum board and plaster. Weather conditions from the Tropics to the Arctic can be simulated. There is also an area outside the plant used for actual weather testing of roofing products. Each of Certain-teed's roofing plants has a "test fence" for testing its own particular products.

A hand sheet-forming machine for making samples of roofing products of felt and paper for use on wallboard is available.

A machine—with a 60,000 psi range—can be used to test compressive strength of gypsum plasters. Laboratories include: A general analytical chemistry laboratory and a special gypsum laboratory for research and development.

The building also houses an engineering department, which designs and develops equipment and is responsible for new plant construction and modernization for the manufacturing company.

John C. Van Balen, architectural engineer for Certain-teed, drew the plans for the building. Lewis C. Bowers & Sons, Inc., Princeton, N. J., were the builders.



DEVELOPMENT CENTER for display and testing of Certain-teed Products, Paoli, Pa.

Moving cylinders speed waste treatment tests

A University of Texas engineer has built a testing device which uses sewage for quick laboratory determinations on methods of industrial waste disposal. E. F. Gloyna, assistant professor of civil engineering, perfected the test equipment, working with Charles Penn of Johns Hopkins University, Baltimore, Md.

The device, consisting of a series of revolving, 2-ft long cylinders, simplifies and speeds up laboratory tests. Ordinary sewage is revolved in the plastic tubes until an organic slime is formed on the tube sides. Then industrial waste to be tested is placed in the cylinders and the revolving begins again.

In a week's time, Professor Gloyna can tell if any types of bacteria in the slime can decompose, and consequently neutralize, poisonous effects of the industrial waste. Previously such work was done in much larger, tub-like containers, but several weeks and sometimes months were needed to obtain the desired test results. The apparatus needed for the work can be housed easily in an average industrial laboratory and requires only minor accessory equipment.

Aerial tramway serves Kemano tunnels

A 5,400-ft long aerial tramway capable of hauling 20-ton loads carries men and materials to major tunnel construction work on the Aluminum Company of Canada's powerhouse construction at Kemano, B. C. (ENR Sept. 25, p. 32 and Nov. 13, p. 31). And there is no other means of access to the job except by helicopter or by climbing the tortuous half-mile high mountainside on foot.

Contractors on the work—Morrison-Knudsen Company of Canada, Ltd.—believed such a permanent type installation was justified because of the duration of the work. (It will take between one and two years to drive the 25-ft dia power tunnel.) And they considered a tramway to be a better choice than building a road. That's because it's cheaper and continuity of tramway operation during heavy winter snows is more assured. Besides that, the tramway will be useful after the plant is in operation for maintenance purposes and for future construction when the plant is expanded—a good business prospect, in view of growing world aluminum demands.

The tramway starts at the powerhouse level (El 200) and travels up the 35-deg slope with landings at El 1,600 and El 2,600. At both upper landings, camps are established to house tunnelmen who work the three underground shifts. And the men stay at these mountainside camps for weeks at a time without returning to the main Kemano establishment just below. Thus, the primary function of the tramway is to haul materials and supplies to the upper levels. In so doing, personnel are carried when and as necessary—this being an important cableway function on a construction job with work sites as difficult to reach as at Kemano.

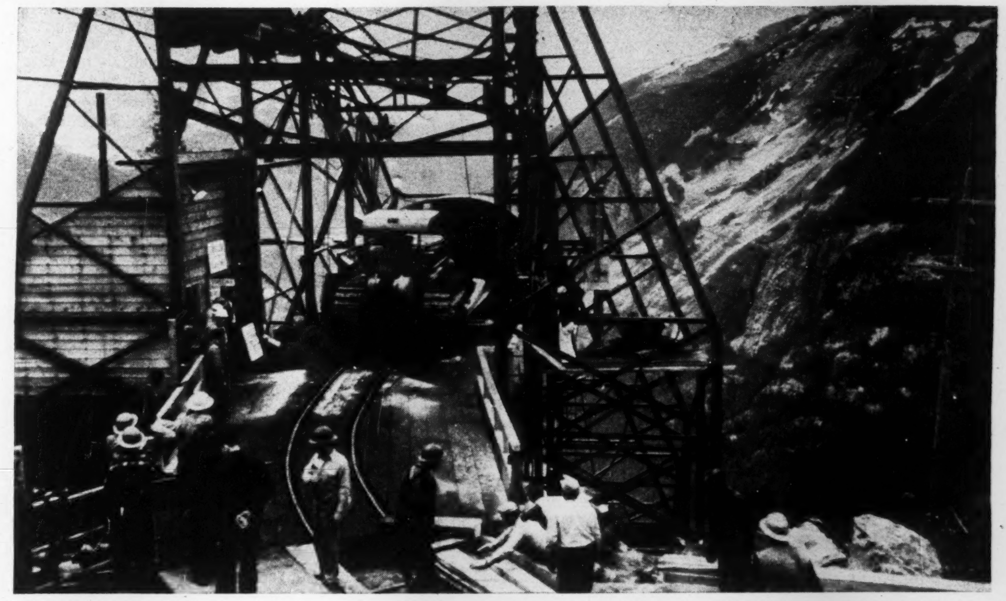
• **Unique design**—The tramway is built to a new design particularly suited to transporting heavy loads. It incorporates features of lifts developed previously for such use in Europe and North America.

The unit is similar to a construction cableway in that the carriage is suspended from wheels that move on fixed track cables. These two track cables are 2½-in. dia. They are suspended from a series of seven steel towers. Longest single span is nearly 2,000 ft (as measured along the cable). The unit itself could be compared to a railroad car with wheels on top, and suspended cables for rails.

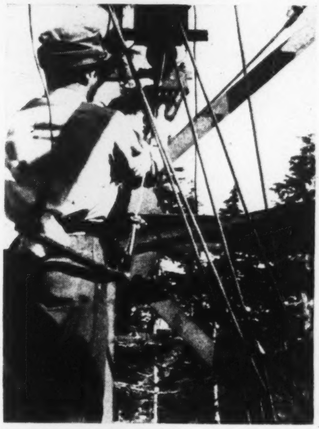
Dead weight of the skip is 10 tons. A hoist on the skip raises and lowers

CABLEWAY SKIP carries load of men and materials to tunneling operations high on the side of the Kemano River Gorge. Capacity of the 5,400-ft long hauling assembly is 20 tons. (All photos ENR staff except as noted.)

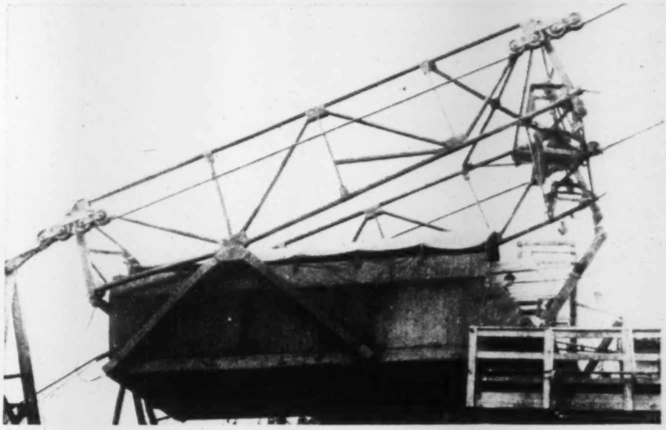
THE LANDING at El 1,600 ft showing the main camp in the background and part of the camp at the 1,600-ft level (right).



LARGEST LOAD carried up by the tramway was a TD-24 crawler tractor stripped down to weigh 19½ tons. With its bulldozer and auxiliary hoist the tractor weighed 35 tons, which was above the cableway's design capacity of 20 tons. (International Harvester photo.)



SKIP ATTENDANT plugs in power lead to lower skip body on reaching a landing.



THE SKIP is designed so that its front end can be lowered to horizontal position for loading. The end is raised for travel.

the front end of the skip body. This movement changes the skip alignment from horizontal at the landings to a position parallel to the track cables for traveling. This is done to reduce the required height of the supporting towers.

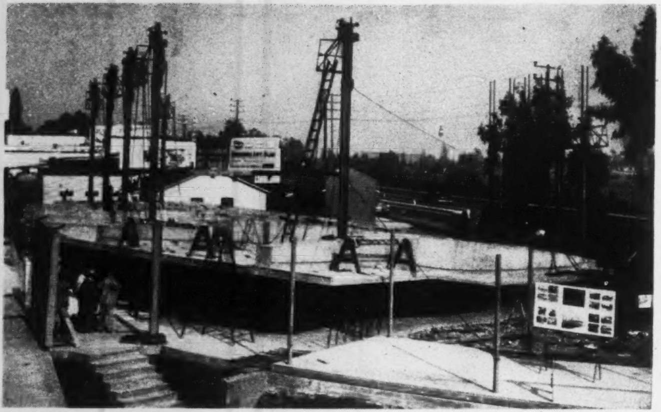
The skip-elevating hoist is driven by an electric motor. To raise or lower the skip body, the skip attendant plugs into power sources that are provided at each landing.

The tramway is powered by a 300-hp. electric motor that reels the 1⅜-in. haul cable around drive and tail drums. As it moves down the slope, the skip is controlled by four brakes, two each being placed on the hoist and tail drums.

The skip attendant signals for movement of the skip by means of a bell signal system. The operator in a control house near the lower landing responds to these signals to start or stop the aerial tramway's travel mechanism.

Maximum speed is 500 fpm. But with a cargo of more than 15 tons, speed is kept below 200 fpm as a safety precaution. And when the cargo is more than 8 tons, no personnel are carried. At these rates, the skip makes about nine or ten round trips during an 8-hour shift. That includes time for stopping and loading. It is equivalent to a trip every 50 minutes.

The cableway was erected by means of hoist operated high lines. During the construction some supplies were carried to the upper level camps by helicopter.



LIFT-SLAB weighing close to 1,000,000 lb starts up for church roof in Los Angeles. Supporting beams are on top. Irregularly-shaped unit was lifted 20 ft at one end (right) and 24-ft at the other. (ENR staff photos)

L.A. lift-slab is heaviest yet

LATE IN OCTOBER in Los Angeles a heavy reinforced concrete slab was hoisted in what is probably a record lift for the Youtz-Slick method. The irregularly shaped unit covers a 7,000-sq ft area and weighs nearly 1,000,000 lb. Supported by 12 columns, the slab forms the roof of a church sanctuary.

Besides the weight, the lift is noteworthy in that it totals 20 ft at one set of six columns, 24 ft at four other columns and somewhere between 20 and 24 ft at two more columns. In other words, the slab was both lifted and tilted.

The roof is pie-shaped except that part of the point is omitted. It is 50 ft wide at the narrow end and maximum chord length is 132 ft. The plane of the slab is irregular, matching the dished form of the auditorium floor on which it was poured. And therein lies the main justification for lifting this slab (other than a possible saving in construction cost). That is, the roof soffit will have the same shape as the floor; thus giving the assembly a striking architectural appearance.

On top of the slab, spanning between columns, are six relatively heavy reinforced concrete beams. These are all about 76 ft long but vary in span between columns up to 66 ft. The beams are 1½ ft wide and have a maximum depth of 4 ft 2 in.

The slab varies in thickness from 4 to 7 in., depending on the distance between supporting beams.

• **Lifting the slab**—The heavy roof was lifted by twenty-four 50-ton jacks which were set in pairs on top of the 12 columns. The jacks raised threaded rods fastened to collars around the columns, normal Youtz-Slick procedure (ENR June 29, 1950, p. 38).

The unit was first lifted clear of the floor about 2 ft. Then it was tilted and adjustments were made in the rods one column at a time. After that it was a straight lift except for changing column braces and guys as necessary.

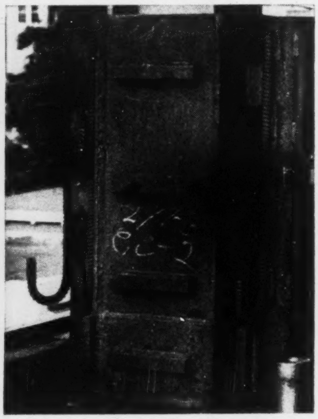
To permit tilting of the slab, the engineer gave special attention to design of lifting collars. All collars were welded steel plates with stirrups tacked on for better bond with the concrete, fitting around the columns and cast into the slab, and including pipes through which threaded rods were placed for the lift. Since this slab was to be tilted, these pipes were flared into oval shape at the top. Further, the opening around this column was made large to permit tilting.

After the lift was completed, the slab was supported on ¾-in. plates bolted to the column flanges. Then columns were encased in concrete fireproofing and the collars grouted in.

• **Credits**—Temple Isaiah was designed by Los Angeles architect Kenneth N. Lind. Structural design, including design of the slabs and collars, was by Brandow and Johnston, Los Angeles consulting structural engineers.

Contractor was Zimmer Construction Co., Los Angeles. Subcontractor for slab lifting was Vagtborg Lift-Slab Corp. of Los Angeles, a Youtz-Slick licensee.

CLOSELY SPACED COLUMNS, 6 ft on centers, support one end of pie-shaped slab that will form the church roof.



FABRICATED STEEL COLLAR similar to this was cast in beam, to take lifting rods operated by jacks atop the columns.

ENGINEER GEORGE E. BRANDOW (left) and C. Henning Vagtborg, lifting contractor, are responsible for the work.

OKLAHOMA CITY— W. Hill St. near Shartel St., built in 1923. Photos taken in 1925 and 1951.

SAPULPA— S. Hickory St. at Bryan, built in 1923. Photos: 1925 and 1951.

Here today – *and still here tomorrow*

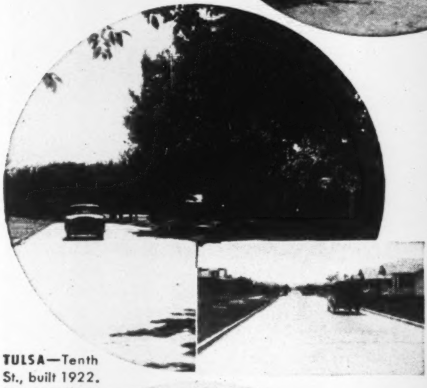
that's the story of Oklahoma's Concrete Streets

Many concrete streets like these in the Sooner state have given ***low-annual-cost*** service for more than 25 years—and will continue to serve for years to come. Such economy and durability have led to an overwhelming preference for concrete streets. During a recent three-year period 86 per cent of all street paving awarded in the state was for concrete.

Concrete streets all over America render outstanding service and are preferred by motorists and taxpayers because of their safety and ***low annual cost.***

They're safe because they're skid resistant, wet or dry, and because their light color provides maximum visibility at night. They're low in annual cost because that's the natural result of moderate first cost + low maintenance cost ÷ long life.

PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work



TULSA— Tenth St., built 1922. Photos: '23, '51.

BARTLESVILLE — Delaware Street at 10th Street, was built in 1919. Photos were taken in 1921 and 1951.

BARTLESVILLE— 12th Street, east of Delaware Street, built in 1920. Photos taken in 1921 and 1951.

NORMAN— Oval Drive at State "U," built 1922. Photos taken 1923, 1951.

McKIERNAN-TERRY PILE HAMMER

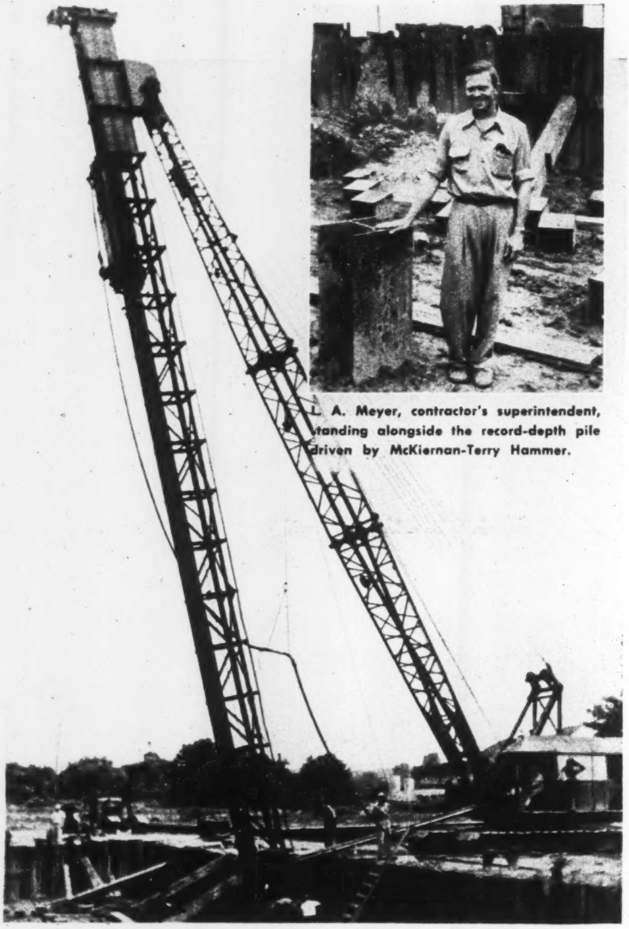
drives 304-ft steel pile

Sets record for Long Pile Driving on Meadville, Pennsylvania relocation job

"We put this 14-in. H pile down 304.3 ft with a McKiernan-Terry S-8 Single-Acting Pile Hammer." That's the statement of L. A. Meyer, superintendent for S. J. Groves & Sons, contractor on this Meadville, Pa. bridge relocation job.

Naturally a powerful McKiernan-Terry Hammer set this impressive pile driving record. With a 26,000 foot-pound blow, the McKiernan-Terry S-8 successfully met varying ground conditions. Piles about 50 ft apart encountered both light and heavy resistance to penetration. Lengths averaged 170 ft with differences of as much as 100 ft between piles next to each other.

On record-making or regular jobs, McKiernan-Terry Hammers always insure profitable pile driving. Complete McKiernan-Terry line includes 16 sizes of hammers and 2 sizes of extractors. Write for bulletin giving full details.



L. A. Meyer, contractor's superintendent, standing alongside the record-depth pile driven by McKiernan-Terry Hammer.

A McKiernan-Terry S-8 Single-Acting Pile Hammer driving long-length steel piles for relocation work on a five-span bridge near Meadville, Pa.

MK 816

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McKIERNAN TERRY

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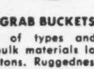

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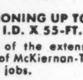

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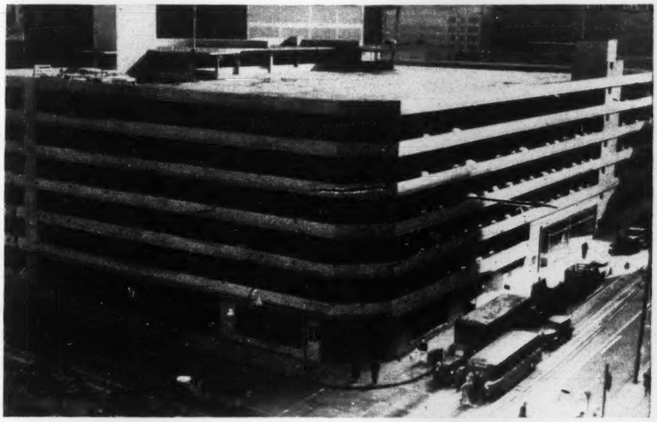


PITTSBURGH MUNICIPAL PARKING GARAGE won't offer such services as refueling and washing if the suit of a nearby private garage is upheld on appeal.

Parking authority under fire in court

The Pittsburgh Parking Authority is in business with two new parking garages despite the twin headaches of a rate fight and a court battle.

The first garage went into operation on Nov. 1; the second was operating on Nov. 15.

Enemies of the parking garage projects say that it may not be just a coincidence that on Nov. 25 the city is instituting a 60-day trial plan whereby all on-the-street parking is going to be banned on downtown streets.

The new parking garages were built at a cost of about $3.5 million. Together they will provide Pittsburgh's Golden Triangle with about 1,600 parking spaces.

The authority and the Office of Price Stabilization had first to reach a meeting of minds over rate jurisdiction. The authority held that rates were none of the business of OPS because authorities are exempt from OPS regulations.

But OPS didn't see it that way. It maintained that since a private company—and not the authority—is actually going to operate the parking garages, the garages were no longer exempt from OPS rules. OPS won.

• **Court fight**—But the court fight overshadowed the rate dispute. As a result of the litigation the parking garages had to give up, for the time being, their original plan to offer washing, servicing and re-fueling facilities.

Judge Henry Ellenbogen banned those services in an Allegheny County Common Pleas Court ruling. An appeal has been made. No decision on the appeal has come down.

Midtown Motors, a commercial garage next door to one of the new authority spaces, led the fight against the services planned. Midtown brought the court action as a taxpayer and property owner.

Judge Ellenbogen's summation:

"Defendants (the authority) contend that since the construction fund of the parking authority was raised by the sale of revenue bonds to private investors, these funds are private and their expenditure does not concern taxpayers and property owners."

He ruled that public funds are involved in the form of parking meter funds, since the city has assigned to the authority, for 30 years, the annual receipts from meters. He added:

"The assignment of parking meter funds by the city is the rock upon which the entire bond issue rests, and without which, we believe, it could not have been sold to investors.

"The parking meter receipts assure the bondholders a respectable return on their bonds, regardless of the success or failure of the parking authority.

"The defendants' contention that neither taxpayers nor property owners may question the expenditures of funds by the authority and that only the Attorney General of the Commonwealth may do so, is neither good law nor sound public policy."

Judge Ellenbogen decided that the legislation under which the authority was created expressly withheld from the authority or its tenant the right to sell gasoline, oil, and allied services.

• **Philadelphia**—A suit that could be of national importance has been filed in Philadelphia by a private garage firm seeking to prevent the Philadelphia Parking Authority from going ahead with one of its projects.

The Nine-Ten Chestnut Corp., promoters of a proposed $1.5-million mid-city parking garage filed the suit in Philadelphia last week. The suit is intended to stop the parking authority from building a 500-car project.

The corporation says that the authority's intended construction is in the same immediate and competitive neighborhood as that of their own garage, to be located at 910 Chestnut Street.

The corporation maintains that competition between private enterprise and the authoritly is "contrary to the intent of the Parking Authority Law."

The Nine-Ten corporation says that it is controlled by a group that also operates a 500-car garage nearby and that with other parking lots in the neighborhood the authority projects will cause an excess of parking space.

The corporation asks an injunction restraining the authority from using its site for parking and from purchasing any other property in the competitive vicinity of 910 Chestnut Street.

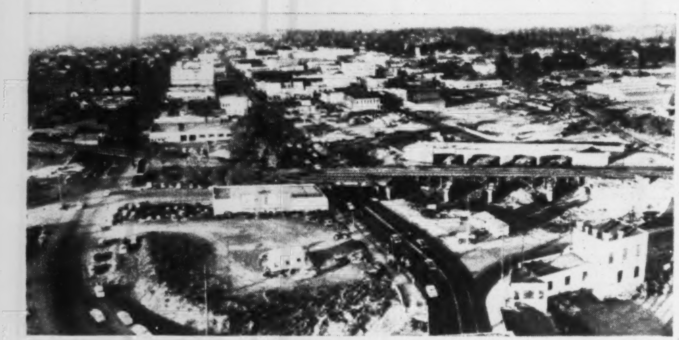
Meanwhile the authority publicly announced its plans to let contracts for a 496-car garage.

• **Hartford, Conn.**—Hartford's corporation counsel and city engineers have started the job of drawing up bid specifications that will allow one of Connecticut's largest department stores to build a $1-million garage on city-owned property.

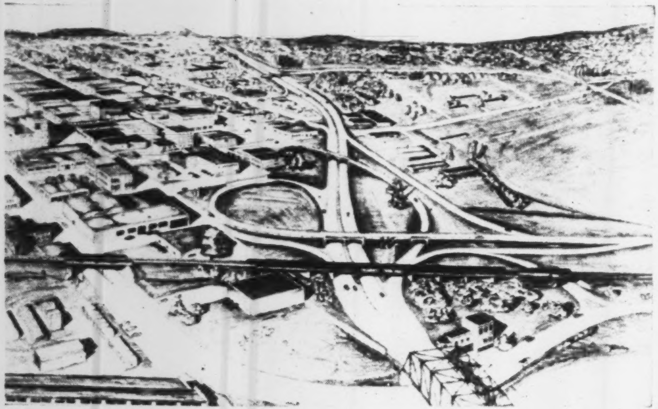
G. Fox & Co. last month startled the city council with an offer to build a 500-car parking ramp at no cost to the city if the city would lease property to the store.

The store is willing to build the garage, pay the city $6,000 a year for the lease on city-owned land and then turn the facility back in 20 years. The store anticipates a $30,000-annual loss on the operation.

The department store's offer will not interfere with the construction of a proposed $2.9-million municipal parking garage.



TODAY—Construction of the Vancouver Freeway from the Interstate Bridge. In foreground, are piers for new railroad crossing; in the middleground, part of the Evergreen Highway crossing; in the background, the 10th Street crossing has begun.



TOMORROW—The completed Vancouver Freeway will have this network of crossings and interchanges. The freeway is the highway running from the bridge to the background of the picture.

$5-million freeway moves ahead

A freeway and route interchange designed to uncork one of the West Coast's worst traffic bottlenecks is taking form in Vancouver, Wash. The project, on U. S. Pacific Highway 99, is at the north end of the Interstate bridge spanning the Columbia River to Oregon.

Snarls, caused by an average 32,000 daily vehicles, on the only toll-free bridge in the Portland area between the two states—and also the only link between the bustling north bank city and metropolitan Portland on the Oregon bank, posed the problem.

The interchange and freeway construction for Washington's PSH No. 1 north-south route (U. S. 99) was first blueprinted in 1948. Site clearing in Vancouver's business district began in April, 1951. The first major unit, providing an overpass for east-west Evergreen highway (PSH No. 8), was finished Oct. 31. Piece by piece, the $5-million project is scheduled to mesh together for all traffic use late in 1955.

Eighteen contracts totaling about $1.5 million have been awarded by the Washington state highway commission and seven others are scheduled for 1953.

Almost every traffic factor is involved in the pattern Washington's highway engineers devised.

• Demolition—Two primary highways (PHS No. 1 and No. 8) bisect within two blocks of the bridge and at the business district doorstep. Paralleling the east-west primary state highway (No. 8) along the north bank of the river are mainline tracks of the Spokane, Portland and Seattle railway. Crowding the business district on the east are military reservation acres of old Vancouver Barracks. On the western edge of the project were sprawled a Vancouver playground-park.

Converting this congested area into a modern traffic routing facility meant clearing private, city and federally-owned property.

• In place—The first structure completed, the Evergreen (PSH No. 8) highway overpass, is 221 ft long and 54 ft wide between curbs. Work was performed by Carl M. Halversen, Inc., Portland, on $185,736 contract. J. H. Kline, resident state highway engineer, supervised the work.

Four other structures are progressing. The S.P. & S. railway has concrete piers of its new $306,000 overpass, replacing a timbered bridge, finished and one of five girder spans in place. Other spans await steel delivery and final shifting of rails a few yards south. The rail structure is the first freeway underpass for traffic leaving the Interstate Bridge. The Evergreen Highway underpass lies just a few yards farther north.

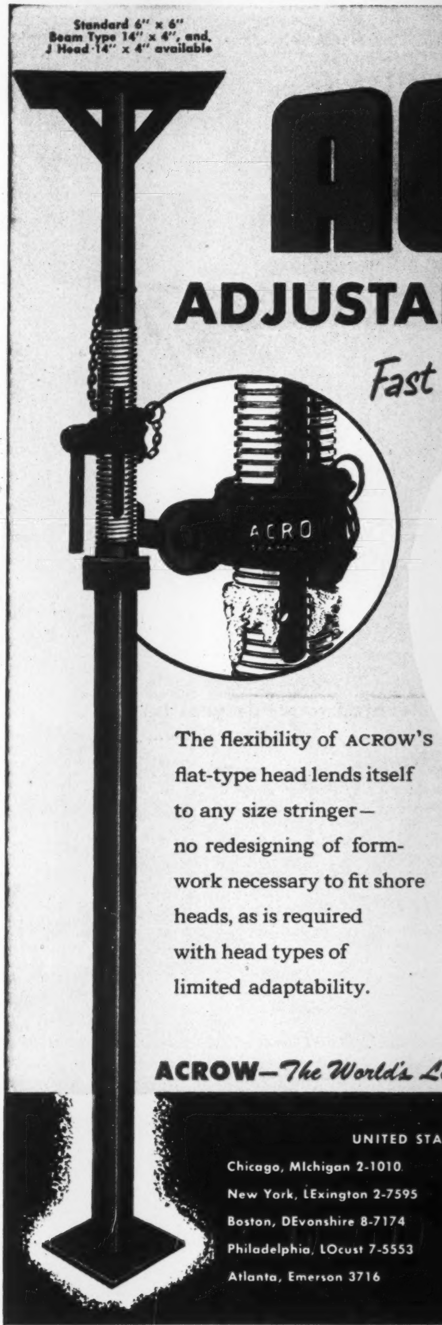
The freeway off the bridge will connect north of the city with existing PSH No. 1 near Burnt Bridge Creek. In sweeping to the north of the city, the freeway will make five undercrossings and two overcrossings between the bridge and 39th St. Overcross structures at Broadway, 10th and 24th Sts. are due for completion next year, the others by 1954. These were required under Washington's freeway standards calling for all left turn movements on grade separations.

• Still to come—Vancouver state highway District Engineer P. J. McKay reports units due to be under contract in 1953 include seven major projects. These are: Grading from the bridge to Fifth St.; grading from Fifth to Burnt Bridge Creek; 14th and 18th Sts. overcrossings and 24th, 29th and 33rd Sts. undercrossings.

Oregon modernized south approaches to the four-lane Interstate Bridge in earlier postwar years.

Looking ahead, highway engineers of the two Pacific Northwest neighbor states know they must one day erect a second bridge across their border river. Preliminary discussions indicate a second span would be located to the east of the congested Interstate Bridge.

(*"Municipal" continued on page 50*)



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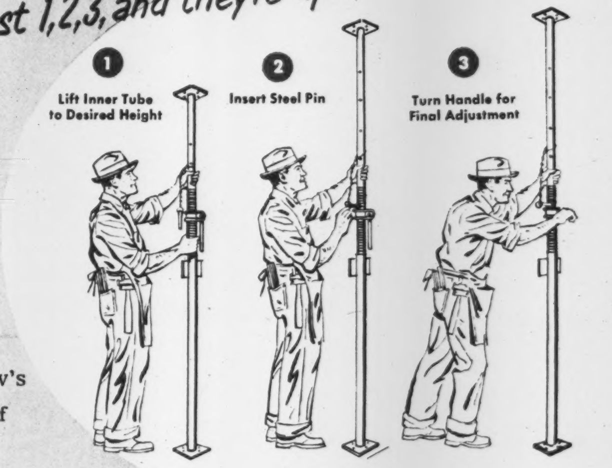

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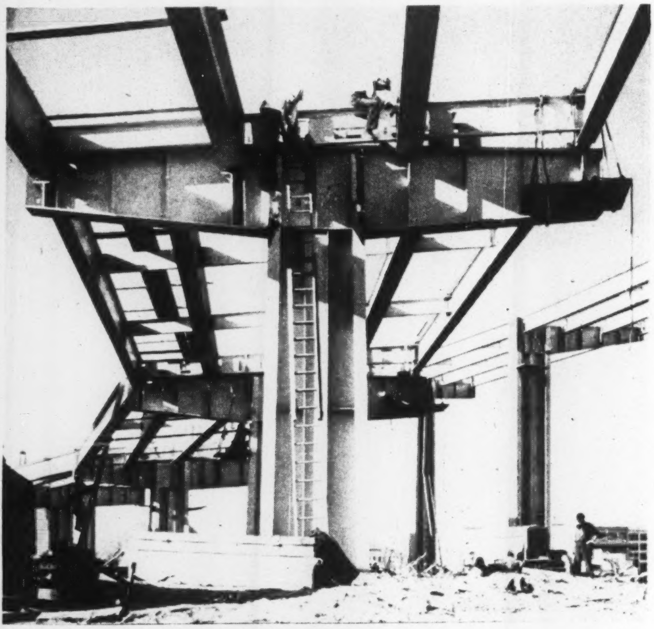
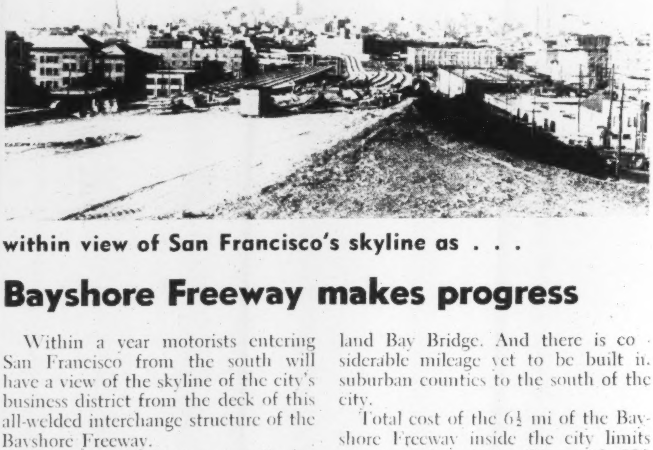


Steel structure for elevated roadway goes up . . .



within view of San Francisco's skyline as . . .

Bayshore Freeway makes progress

Within a year motorists entering San Francisco from the south will have a view of the skyline of the city's business district from the deck of this all-welded interchange structure of the Bayshore Freeway.

Completion of this work will ease driving past a major industrial-commercial section of the city.

Several additional contracts are yet to be let to complete all work on the freeway from the city limits to a connection with the San Francisco-Oakland Bay Bridge. And there is considerable mileage yet to be built in suburban counties to the south of the city.

Total cost of the 6½ mi of the Bayshore Freeway inside the city limits is estimated at $45 million with $20 million of this going for rights-of-way acquisition.

Only 1.3 mi is now in service. When the construction shown above is completed it will add another mile to the freeway.

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*Figure shown is average for 15 half-yard machines surveyed. Most powerful published rating of the machines surveyed is 67 H.P.

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Philadelphia improvements planned to fit city purse

An ambitious program of capital improvements has been outlined for Philadelphia, Pa., by Mayor Joseph W. Clark, Jr.

The program calls for expenditures of $242 million by the city over the next six years. The sum represents the "hard core" of municipal projects for which financing will be available.

A short time ago, Mayor Clark called for a complete study of the municipal improvement plan, commenting that previous plans had represented "only a mass of figures with no real significance to officials or the taxpayers."

The resulting survey now shows clearly what will be done and how it will be financed.

Embracing virtually every field of municipal activity, the program includes new housing, port improvements, additional fire and police stations, health and medical facilities and new recreation centers, as well as what Mayor Clark called "such prosaic functions" as sewage treatment, garbage disposal and street repairs.

Full cost of the six-year program has been set at $385 million with $143 million to be contributed by the state and federal governments for such projects as highway construction, housing and hospitals.

Originally, an even larger program was proposed by various city departments, the mayor explained, but the total was slashed by $76 million.

• **Recreation**—Two of the most spectacular projects in the program have been sponsored by the Department of Recreation.

The first is a civic auditorium to be built in Fairmount Park. The building would be an outdoor amphitheater, equipped with a retractable roof, for year-round activities such as: civic rallies, concerts, and choral festivals. The $300,000 earmarked for this purpose (in 1954) probably will not be enough to complete the auditorium and it is planned to raise the remainder, about $200,000, by public subscription.

The second is a swimming center with facilities for staging national and international meets. It would include: a pool meeting olympic standards; deck space for 5,000 pool patrons; stands accomodating several thousand spectators, and parking space for 1,000 automobiles.

In addition to the new Olympic sized pool, the recreation department

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will build six new neighborhood swimming pools to replace existing inadequate "concrete bathtubs." Improvements are planned at 63 playgrounds and at 35 parks and squares, and day camp facilities will be provided in Fairmount Park.

- **Other projects**–The redevelopment authority is studying 10 projects in connection with the program, the latest being a plan for reclamation and development of the 2,600-acre Eastwick area in extreme southwest Philadelphia. Large tracts would be offered to builders for construction of homes, there would be provision for public housing and portions of the area would be set aside for shopping centers and industrial use.
- The port program includes construction of a single-story cargo shed between piers 38 and 40, South, and the installation of apron tracks on each side to facilitate direct handling of cargo between ships and railroad cars. It is scheduled for completion in 1954.
- Two combination police and fire stations, five police stations and twelve fire stations are to be built.
- Two new branches are listed for the public library.
- At Philadelphia General Hospital's Luzerne Branch some $6.5 million will be spent for a general hospital building and nurses' home.
- Highway plans call for completion of the Schuylkill Expressway, Pennsylvania Boulevard, the Delaware Expressway, and elimination of traffic bottlenecks in various parts of the city.

"This report," said a city spokesman, "takes the projects out of the hypothetical planning stage and puts them into the realm of reality with money on hand to pay for the work."

Performance bond

One possible result of the recent inquiry into sewer construction by Victor Clemente in New York City (ENR Sept. 4, p. 74) will be the requiring of performance bonds for all city work.

The late Mayor LaGuardia eliminated the need for such bonds 15 years ago. Only two city departments now require them. Other departments have let $200 million a year in contracts without such a requirement. Instead the comptroller of the city withheld up to 15% of the payments for one year after completion.

("Municipal" continued on page 56)

375-ft. Plate Girder Span

ANOTHER RECORD-HOLDER* BUILT BY

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**Fabricated and erected by American Bridge, the new Hackensack River Bridge on the recently opened N. J. Turnpike is co-holder of the record for the country's longest plate girder main spans.*

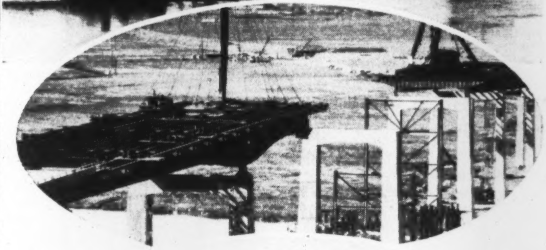
THE completion of the Hackensack River Bridge near Laurel Hill, New Jersey, by American Bridge, and the Passaic River Bridge by another contractor, permitted the opening of the final nine-mile section of the 118-mile New Jersey Turnpike. These two bridges with main spans of 375 ft. set a new U.S. record for lengths of plate girders.

The Hackensack River Bridge has a total length of 5613′3″ c. to c. of end bearings on abutments and provides six 12 ft. traffic lanes, a 6 ft. center mall and two 3 ft. safety walks. The 375 ft. main span with two flanking spans of 275 ft. each, c. to c. of bearings, are composed of two continuous girders spaced 56′ apart with a maximum depth of 21′6½″ b. to b. of flange angles over the piers.

The south approach contains a 5000 ft. radius curve and the north approach a 4000 ft. radius curve. The spans on curves are super-elevated and both approaches are on a 3% grade with a 940 ft. length vertical curve symmetrical about the center of the river span. Silicon steel was used for all main girder material.

The New Jersey Turnpike now provides another link in the envisioned north-south expressway and extends from the Delaware Memorial Bridge below Wilmington, Delaware, to connections with the main crossings of the Hudson River to New York—the Holland and Lincoln Tunnels and the George Washington Bridge.

The over fifty years of bridge building experience, the technically trained personnel, the most modern equipment of American Bridge, were needed to build a bridge of this magnitude, again living up to its old motto, "If the engineers can design it, American Bridge can build it."



Project: Hackensack River Bridge
Owner: New Jersey Turnpike Authority
Consulting Engineers: Howard, Needles, Tammen & Bergendoff
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MUNICIPAL

Joint committee set up by AGC and APWA

A committee to consider questions submitted by municipal and general contractors and public works officials was organized last week. The committee is a joint body of the Associated General Contractors of America and the American Public Works Association.

The national joint committee which will study matters in municipal construction which are of mutual interest to members of both organizations was set up by the invitation of AGC President Arthur S. Horner of Denver, Colo., APWA President Allan H. Rogers, of New York accepted the invitation.

Co-chairmen of the committee appointed by the presidents of the respective associations are: George R. Thompson, city engineer, Detroit, for APWA and C. R. Ralph, Kaw Paving Co., Inc., Topeka, Kan., for AGC.

Minneapolis is forgiven and city gets building

The Prudential Insurance Co. of America, relenting after the turndown it got a month ago from the Minneapolis Board of Park Commissioners (ENR Nov. 13, p. 53) last week decided to build its $6-million, six-state, north central home office in Minneapolis, Minn.

A conditional sales contract for purchase of 32 acres in Theodore Wirth Park for $190,000 was entered into between Carroll M. Shanks, Prudential president, and Edward Chalgren, park board president.

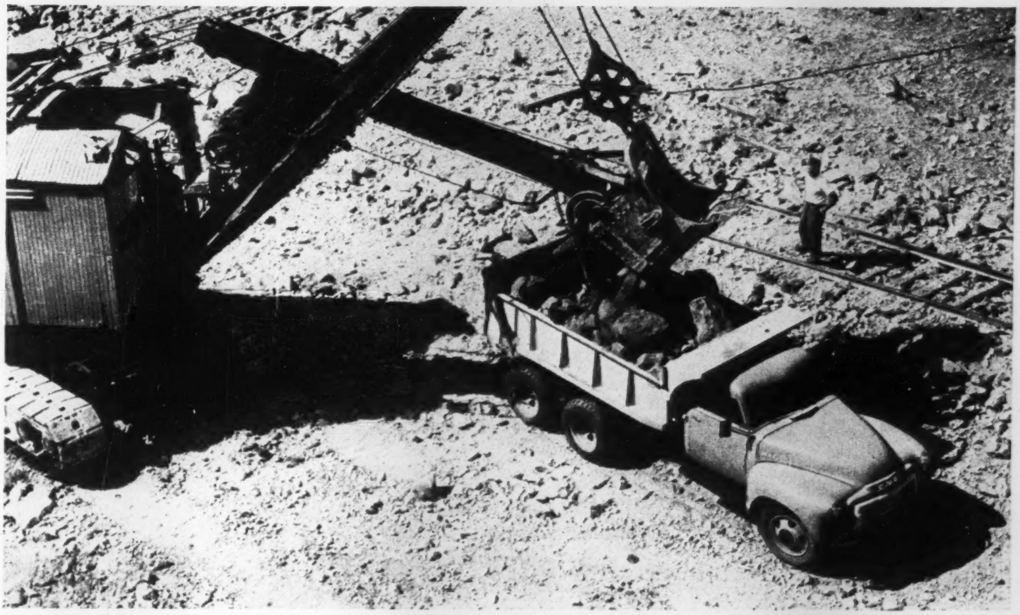
The deal still needs approval by the Hennepin County District Court and a change of zoning from residential to commercial by the city council, but no difficulty in obtaining either was foreseen.

Shanks came to Minneapolis a month ago presumably to complete a deal for a site on which to build. However, the park board failed to give the proposal the necessary majority vote.

At that time Shanks withdrew his offer for the site. Instead, he visited several locations in neighboring St. Paul whose officials and leaders urged him to build the new office in their city. Shanks said then that he was favorably impressed.

Then began a campaign by Minneapolis leaders to induce Prudential to go ahead with its plan to build in Minneapolis. The park board reconsidered its vote and approved the sale.

(*Continued on page 58*)



TOUGH OFF-THE-ROAD CONDITIONS like this call for the rugged power reserve and rim-to-roof, *all-truck* construction found in GMC's new W450-30 six-wheeler. It's available in five wheelbase lengths from 149 to 197 inches for use with medium dump, concrete mixer or general purpose body.

When a job calls for "Extra Push"

–GMC's new W450-30 six-wheeler delivers the goods!

GMC'S NEW W450-30 SIX-WHEELER can take rugged going like this because an extra differential acts between the dual-drive rear axles to deliver husky drive where it's needed – eliminating power waste and tire fight. The W450-30 also has provision for an *optional* inter-axle lock-out operating from the dash.

WHEN THE CHIPS ARE DOWN, GMC's great new 26,000 GVW six-wheeler delivers all the extra power you'll need to get your job done–and get it done on schedule!

No comparable six-wheeler today can match its sensational new 145 H.P. power plant. It delivers the most might per pound in trucking history from a record-shattering 7.2 compression on *regular* gasoline.

That's why it's no problem for the W450-30 to cram extra trips into a day's work – without strain or struggle. It can zoom capacity loads out of the pit with less gearshifting than any similarly rated truck you've ever used.

But get the whole story from your GMC dealer. Find out how surprisingly little it costs to put this great new six-wheeler on your next job!

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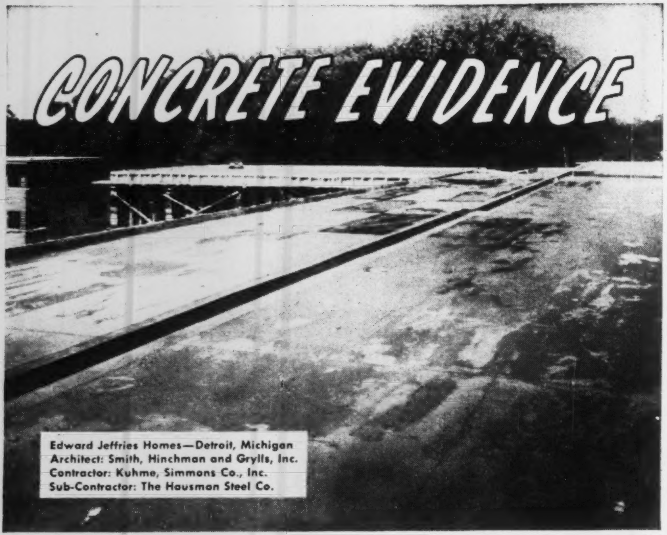

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Architect: Smith, Hinchman and Grylls, Inc.
Contractor: Kuhme, Simmons Co., Inc.
Sub-Contractor: The Hausman Steel Co.

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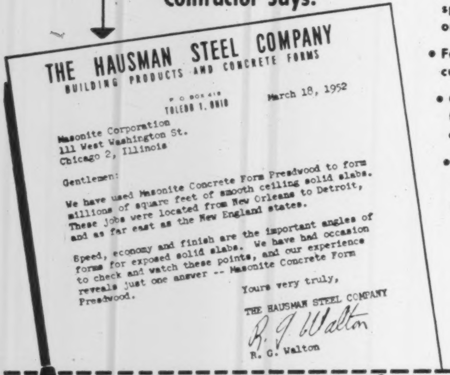

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- **Grainless—won't split, splinter or crack.**
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MUNICIPAL

S. W. Toole, Prudential second vice president in charge of construction, said architects for the building will be chosen soon. Preliminaries have been prepared by Magney, Tusler & Setter, Minneapolis. According to Toole, construction won't start for about six months.

Among contract provisions are: city to provide easement for storm and sanitary sewers and build two access roads to site; Prudential agreed that size, mass and appearance of the buildings "shall blend approximately with the surroundings."

$13-million roadway job adds two lanes to bridge

Albert H. Morgan, acting public works commissioner of New York City, said recently that plans have been completed for a new north upper deck roadway and Manhattan connections for the Queensboro Bridge crossing of the East River.

Designs for the Queens end approaches for the new two-lane roadway are about 65% completed, Morgan added.

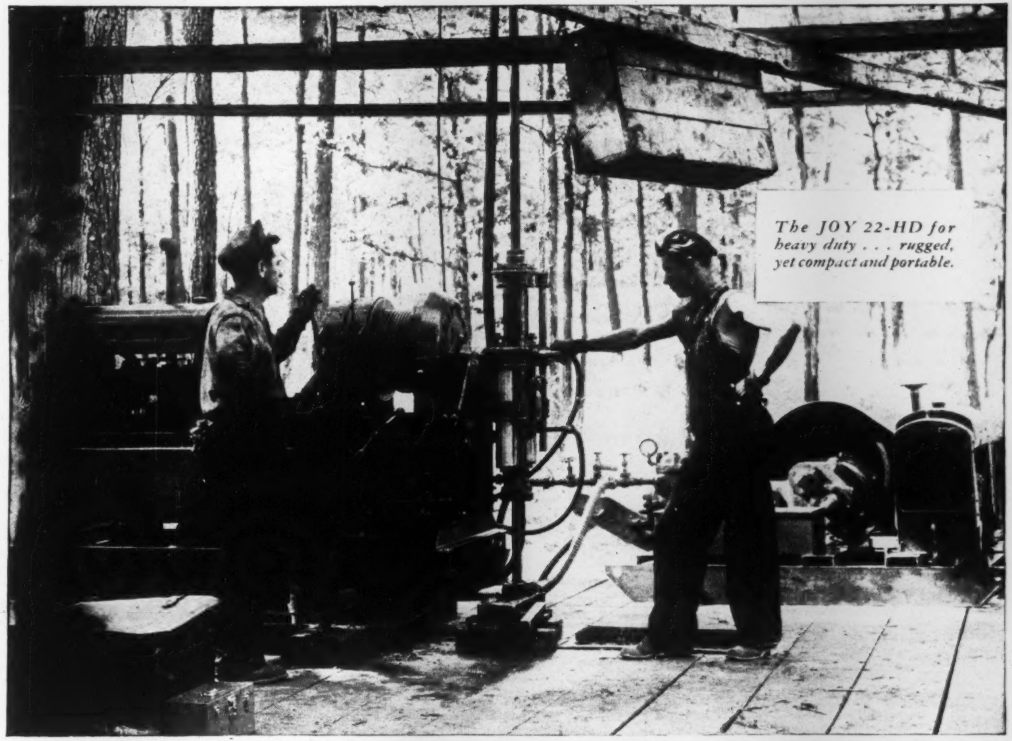
Construction of the roadway and reconstruction of the Manhattan approach will cost $5 million. The Queens approach will cost $3 million. The total cost will be about $13 million including land acquisition. Construction is expected to get under way next year.

The revamping of the 40-year old Queensboro Bridge was projected by the city in 1949 because of the rapidly increasing traffic between the Borough of Manhattan and the burgeoning Borough of Queens.

At present the main roadway of the bridge has five lanes. The two-lane south upper roadway was opened in June 1931. On this upper roadway traffic is reversed at intervals in order that the flow of heavy traffic may be accommodated.

Talk about smog

Los Angeles County Board of Supervisors has voted to establish a layman's consulting committee on the area's acute smog problem. Establishment of the committee was a recognition of mounting agitation for more effective smog control. The resolution establishing the committee said it would be aimed at dispelling "misunderstanding and confusion regarding the progress of smog control," and blamed the misunderstanding on lack of information and "the inability of the citizen to take part in the problem."



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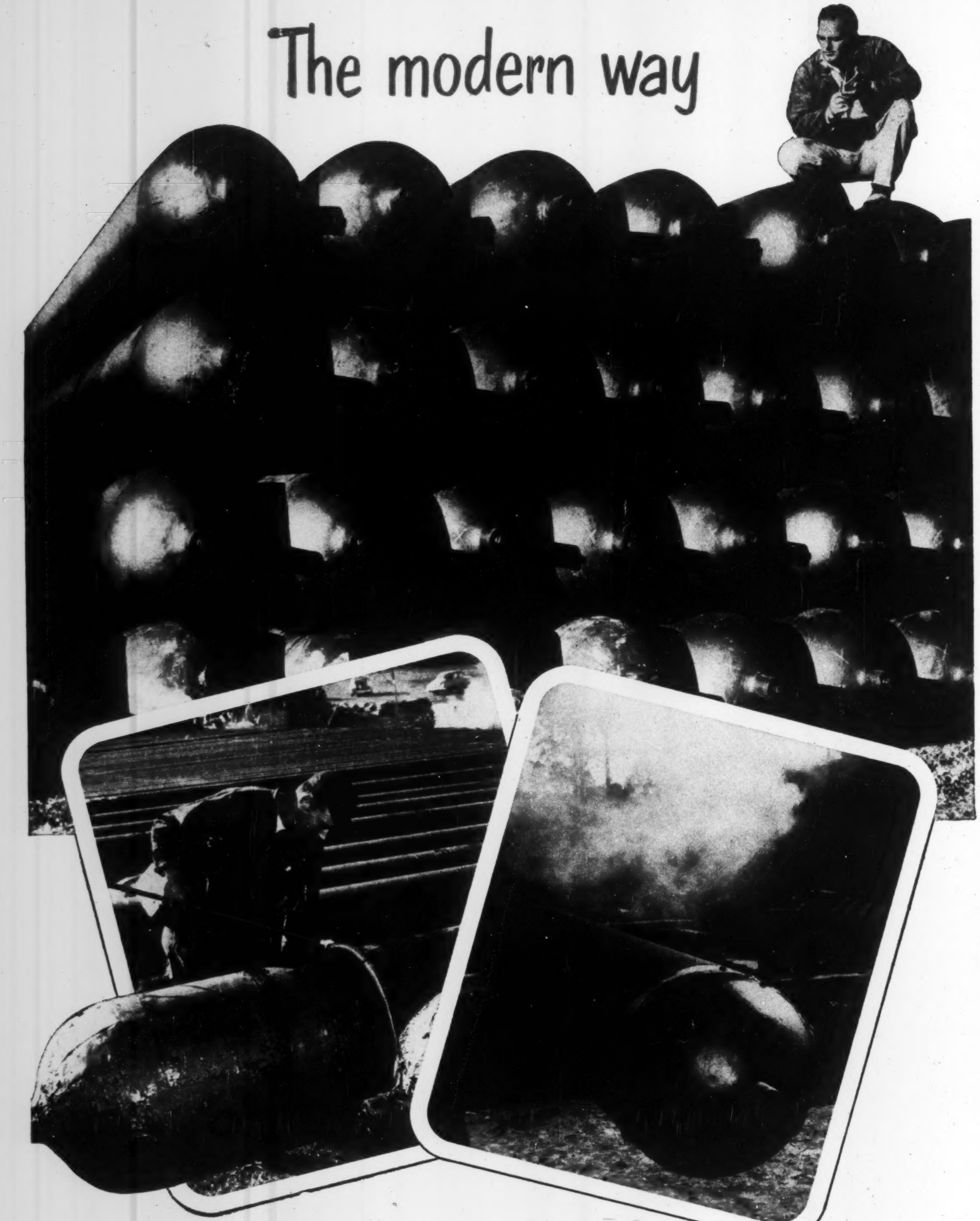

to store gas as exemplified by an installation under construction for the

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-safely underground

● *The Washington Gas Light Company installation is a combination of underground high pressure natural gas storage and propane-air. The steel bottles are laid out in blocks of 40 bottles, each block storing a million cubic feet of gas. The bottles are installed in the ground with 4 feet of cover, after being coated and wrapped. In addition, the storage bottles and piping will be cathodically protected. Stone and Webster Engineering Corporation designed and is constructing the plant.*

Some of the advantages of this type of storage are:

SAFETY. The bottles are unaffected by storms, high winds or lightning. They are not a hazard to or from aviation.

UNIFORM PRESSURE. Underground temperatures are relatively stable the year round. Gas pressure does not fluctuate like it would if stored above ground.

COMPACT. These high pressure bottles take up less room.

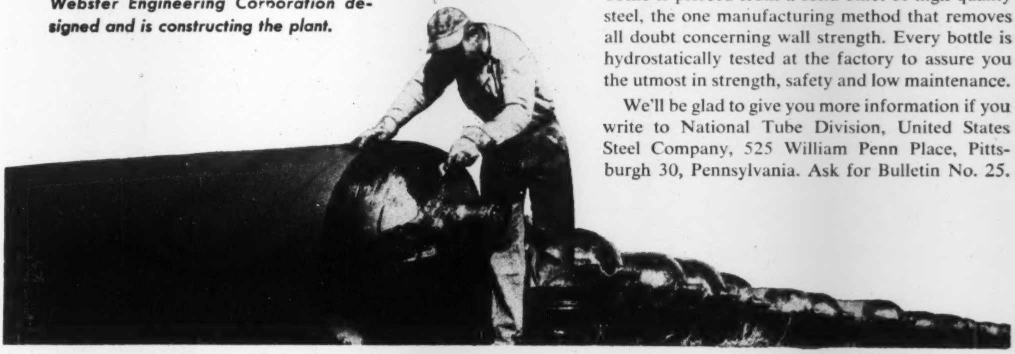
STABLE. Bottles buried won't vibrate and settle like a surface installation.

EASIER MAINTENANCE. Leaks are easily located and any block may be purged and taken off the line without interruption of flow from other blocks. These National Seamless Bottles are inspected twice at the factory and twice in the field.

LESS MAINTENANCE. Unlike above-ground installations, these bottles do not have to be painted periodically and they do not require constant inspection and protection against the elements.

When you lay long range plans for a gas storage system, consider the advantages of underground storage with National Seamless Steel Bottles. Each bottle is pierced from a solid billet of high quality steel, the one manufacturing method that removes all doubt concerning wall strength. Every bottle is hydrostatically tested at the factory to assure you the utmost in strength, safety and low maintenance.

We'll be glad to give you more information if you write to National Tube Division, United States Steel Company, 525 William Penn Place, Pittsburgh 30, Pennsylvania. Ask for Bulletin No. 25.



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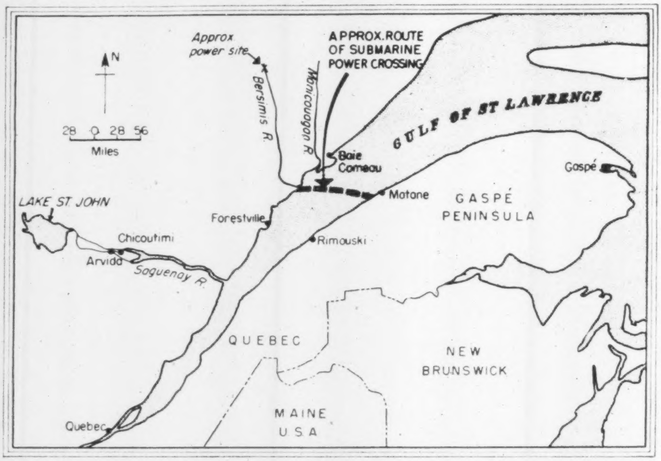


Quebec plans $100-million program

Work will start next year on a $100-million water power scheme in an isolated section of the Province of Quebec, according to Premier Maurice Duplessis.

The project, to be sponsored by the Quebec Hyrdo Electric Commission, will provide power for an area stretching from the Saguenay region to the Gaspé Peninsula.

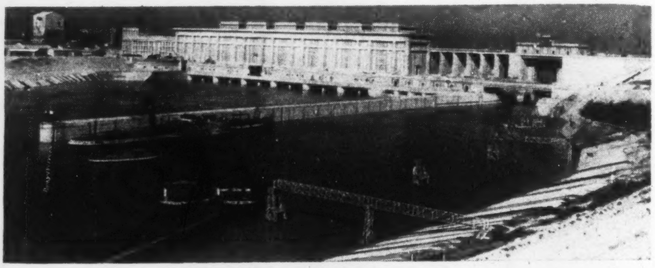
The power will be developed in the upper reaches of the Bersimis River, one of the streams that discharge into the Gulf of St. Lawrence.

The site is very wild, and is used only for wood cutting for paper mills.

The project will include a mass concrete dam 200 ft high and 2,500 ft long at the mouth of Lac Casse, 15 miles north of the power station site.

Water will be drawn from this lake through an eight-mile tunnel 28 ft in diameter, to give a head at the power plant of 870 ft—one of the highest heads to be used for water power development in eastern North America. Part of the tunnel will be 700 ft underground.

Of unusual interest are the arrangements for transmission of the power, since these will include four submarine cables, 31 miles long, across the Gulf of St. Lawrence to carry some of the power to the Gaspé Peninsula.



France finishes Rhone power plant

Dedication Oct. 25 of the Andre Blondel hydro power plant of the Donzere-Mondragon project by President Vincent Auriol of France marked a great step forward in that country's planned development of the Rhone.

The plant, which will turn out 1 billion kwh a year initially and 2 billion kwh when all of its six 50,000 kva generators are installed, will be

(*Continued on page 65*)

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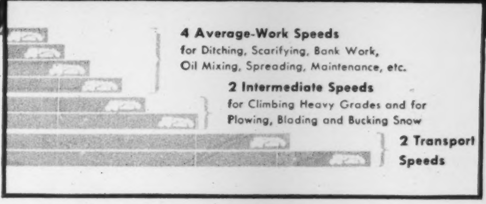
a wider work range—higher transport speed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the largest in Western Europe. Supplementing already-completed Genissiat upstream near the Swiss border (ENR June 22, 1948 vol. p 1024) which is feeding 1½ billion kwh annually into the national grid, Donzere-Mondragon represents the second great step in the Rhone's development. The third step will be taken at Montelimar, only a few miles upstream from Donzere-Mondragon, where a similar project but of about half the power capacity will be built. Already designed, this project is in the early construction stages.

Donzere-Mondragon, named for the towns at its northern and southern extremities, is a multi-purpose project. It consists (ENR Nov 22, 1951, p. 30) of a 17-mile canal that permits boats and barges to bypass a swift and winding section of the river and that also feeds the power plant near its lower end. In addition to navigation and power, the canal serves as an irrigation water source for lands in the vicinity. At the power house is also located the ship lock (at the right in the above picture) whose single lift of 86 ft places it second only to the lock at McNary Dam on the Columbia River.

The powerhouse, 610x230 ft and 185 ft high, houses six adjustable-blade Kaplan turbines connected to 50,000 kva generators. The power installation is designed to take the full canal flow of 54,000 cfs under a head varying from 52 to 92 ft.

New Brunswick completes Tobique Narrows dam

Completion of the Tobique Narrows power plant of the New Brunswick Electric Power Commission in Canada now is scheduled for early in 1953. The first of two 12,500-kw generators in the new plant will go into service at that time. Located near the mouth of the Tobique River, the new plant will develop a head of 75 ft.

Because the river provides an important spawning area for salmon, the dam has been provided with a fish ladder 1,200 ft long. This ladder is of the same general type as those used on the Pacific Coast, but the downstream entrances are located directly above the outlets of the draft tubes of the powerhouse.

Starting from a gallery across the face of the powerhouse, the ladder follows a zig-zag route up the bank adjoining the power plant, which is at the right of the spillway. Each pool is 11 ft long, 8 ft wide and 4 ft deep, and has a rise of1 ft. There are resting pools at intervals of 250 ft.

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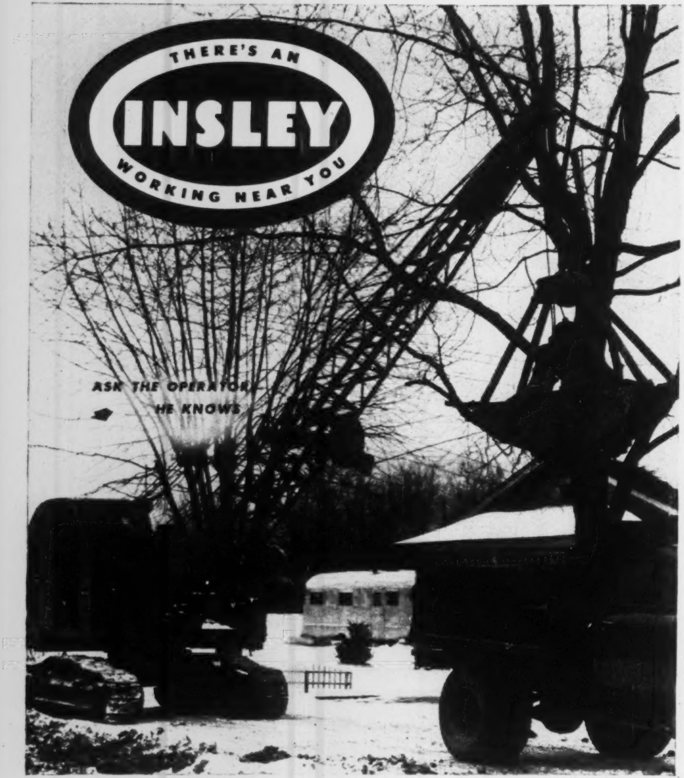

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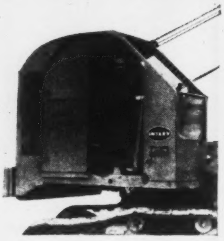

Normal flow through the entrances above the tailrace is at a rate of 9 cfs. If necessary, the rate through any entrance can be increased by water from a 10-in. pipeline to the gallery.

The Tobique Narrows plant was designed and built by the Power Corporation of Canada of Montreal. The engineering division and the conservation and development service of the Department of Fisheries at Ottawa participated in the design of the fish ladder.

Power crossing has two-mile span

A transmission line crossing with a span of 10,656 ft across Kootenay Lake in British Columbia was completed recently for the Consolidated Mining and Smelting Co. of Canada by the Dominion Bridge Co. It is part of an 87-mile line between hydro plants on the Kootenay River near Nelson and the company's mining operations at Kimberley, B. C. Building a line around the lake would have added 80 miles to length of line.

The span over Kootenay Lake is believed to be the longest in the world, 3,000 ft longer than the reported record holder in Switzerland. The cables carry 72,000 kva at 161,000 volts. Each cable is a high tensile strength steel wire strand, containing 91 wires, galvanized, and having a nominal diameter of 1¼ in. Conductor tension, under the worst wind and ice conditions, is about 50 tons.

On the east shore, the three conductors are supported by a single tower 366 ft high, anchored by three upper and three lower (conductor) backstays. On the west shore, where there is a high rock bluff, each conductor is supported by a steel tripod.

Conductors were drawn across the lake on pontoon supports, using a pilot line supported on cedar floats as a guide.

International briefs . . .

- **Check cement production**—The South African Government at Johannesburg is considering appointment of a Cement Inquiry Commission to study possibilities of manufacturing cement from blast furnace slag to relieve the scarcity of the material in South Africa.

- **British housing up**—Britain completed its best housing month since the war in September, when 22,323 houses were completed. That figure was more than 5,000 over September of 1951.

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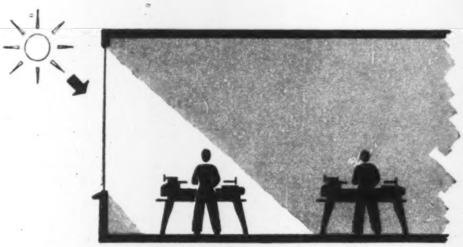
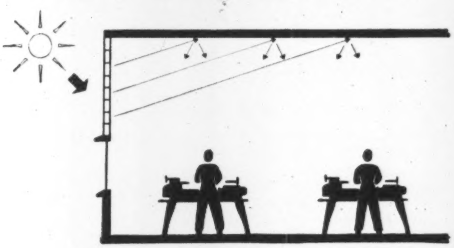
daylighting your buildings

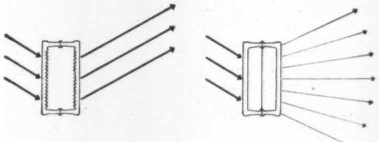
WITH PITTSBURGH CORNING GLASS BLOCKS



QUESTION . . . How can we achieve the control of daylight over wider working areas in our offices and shops?



ANSWER . . . PC Functional Glass Blocks are especially designed to direct or diffuse natural daylight, so that it may be properly controlled for maximum illumination, with comfort. This diagram shows how a room is "daylighted" with PC light-directing glass blocks.



TWO TYPES of PC Functional Glass Blocks are available—light-directing and light-diffusing.

▸ Wherever good daylighting is demanded — in offices, factories, plants, laboratories, public buildings —PC Functional Glass Blocks promote efficiency, reduce eye fatigue, guard workers' well-being.

For, in addition to many purely decorative patterns, PC Glass Blocks are available in *functional* patterns that specifically *direct* or *diffuse* daylight. With PC *Functional* Glass Blocks, the most exacting daylight control and distribution needs can be met without shading. These functional patterns include two principal types. One type controls light by *bending* or *directing* it upward. The other type by *diffusing* it. The light-directing glass blocks, installed above eye level, have internal prisms that project incident daylight above the field of vision and thus distribute illumination with remarkable uniformity throughout the room. The light-diffusing glass blocks break up harsh rays and flood interiors with softly diffused light of high quality.

Our specialists will be glad to consult with you on any problem involving the daylighting of your buildings. Ask for their help. There's no obligation.

Other Facts; PC Glass Blocks cut maintenance costs; assure privacy; eliminate outside noises and distracting views; stop infiltration of dust and grit; reduce cleaning expense; cut heating and air-conditioning costs; are immediately available.

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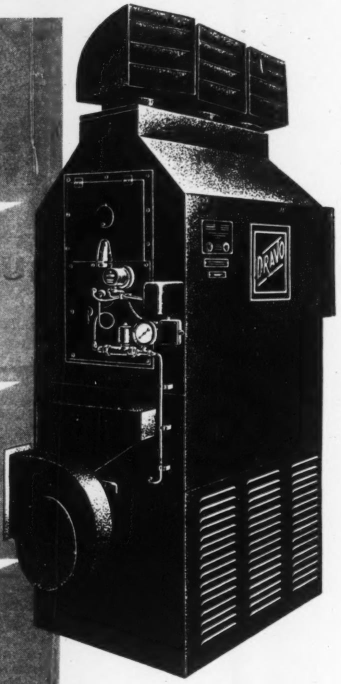

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MEN AND JOBS

APPOINTED Chief of Army Engineers, Maj. Gen. Samuel D. Sturgis tops a 34-year career.

TEMPORARY head of the Engineers, Maj. Gen. George J. Nold, present deputy chief.

Sturgis to take command of Engineers

An intensive 34-year Army career involving varied, steadily increasing responsibilities has prepared Maj. Gen. Samuel D. Sturgis for his new job as Chief of Engineers. His appointment as successor to Lt. Gen. Lewis A. Pick becomes effective Dec. 1 (ENR Nov. 13, p. 27).

It will take Sturgis longer than that to close out the business of his present command, in charge of the Communications Zone for the U. S. Army in Europe. During the interim, until Sturgis arrives in Washington, Maj. Gen. J. Nold, present Deputy Chief of Engineers, will serve as acting chief.

• **Sturgis' career**—Sturgis began his Army career upon graduation from West Point in 1918. During the next three years, he served with Engineer troops in various locations and was graduated from the Engineer School of Applications at Fort Belvoir, Va. Then he went back to the Military Academy for four years as an instructor.

His activities intensified in 1926 when he went to the Philippines as adjutant and later commanding officer of the 14th Engineers. During three years in the Archipelago, Sturgis made strategic studies of the Southwest Pacific that served him well in World War II.

In 1929, Sturgis went to the 9th Engineers, Mounted, at Fort Riley, Kan. There he made the first applications of mechanical equipment—bulldozers, diesel shovels, compressors, etc.—to Engineer opearations. His efforts served as a model in mechanizing U. S. Engineer troops for modern war.

Between school assignments, he went, in 1935 to Eastport, Me., as assistant to the district engineer on the Passamaquoddy Tidal Power Development. Later he took over as District Engineer for two years and liquidated the big project when the Roosevelt Administration gave it up.

After the Ohio River flood of 1937, Sturgis was detailed to the Huntington, W. Va., district as executive officer during construction of flood control and navigation works on the Ohio.

In 1940, Sturgis was assigned District Engineer at Vicksburg, Miss. During two and one half years there, he was responsible for some of the greatest flood control works on the Mississippi under the Flood Control Act of 1941. His Vicksburg district during that time also built nearly $200 million of military and industrial projects.

During World War II, he served as Chief Engineer of the Sixth Army in the Pacific campaign.

Following the war, after assignments as Air Engineer at Air Force Headquarters and later with the War Department General Staff, Sturgis in 1949 became Division Engineer of the Missouri River Division, Omaha, Neb.

In February, 1951, Sturgis took command of the 6th Armored Division at Fort Leonard Wood, Mo. A year later, in March, 1952, he became Commander of the Communications Zone European Command.

• **Nold's career**—Maj. Gen. George J. Nold has served continuously with the Army Engineers since 1917, when he got his B.S. in C.E. degree from Purdue University. In one October day of that World War 1 year, he was commissioned a second lieutenant and promoted to first lieutenant and to captain—temporary rank. He became a permanent captain two years later.

After service with Engineer troops in the United States, he went to Hawaii in 1919 and returned to Cincinnati in 1921 as assistant to the District Engineer. That same year, he entered the Engineer School at Fort Belvoir, Va., staying at the school as an instructor until 1924 when he was assigned to the New Orleans District Engineer Office.

In April, 1926, Nold became Professor of Military Science and Tactics at the University of Kansas, Lawrence, Kan. Four years later he transferred to Fort Logan, Colo., with the 2nd Engineers.

For 1933 to 1940, Nold filled a series of four assignments in Engineer divisions and districts.

In July, Nold took command of the 28th Aviation Engineers at March Field, Calif. With them, he went to Annette Island, Alaska.

From October, 1941, to June, 1944, Nold was engineer officer, Alaska Defense Command. At the same time he had charge of the construction of Army bases in Alaska, in both capacities, he took part in the Aleutians campaign.

Assigned in June, 1944, as engineer of the newly organized Tenth Army Nold had an active part in the planning and operations phases of the Okinawa campaign.

At the end of the war, Nold returned to the United States in late 1945 as engineer for the First Army, with headquarters in New York. In August, 1948, he became division engineer of the North Atlantic Division, New York, and in December, 1940, he was assigned to the Office of the Chief of Engineers. He was then appointed Assistant Chief of Engineers and later became deputy chief.

Both Sturgis and Nold have received citations for exceptional service. Sturgis holds the Silver Star, Legion of Merit, Bronze Star and Distinguished Service Medals. Nold has been awarded the Legion of Merit plus one Oak Leaf Cluster.

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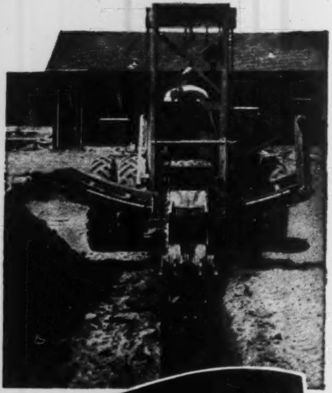

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Columbia Basin manager to retire in December

H. A. Parker, district manager of the Bureau of Reclamation's 1,029,000-acre Columbia Basin Project in central Washington state will retire on Dec. 20, after 14 years of directing the survey, design and construction phases of the project.

His position will be taken by P. R. Nalder, present assistant district manager.

Parker had more than 42 years service with the bureau and is the second oldest employee in length of service on the Columbia project. He arrived before the formal ground breaking for Grand Coulee Dam in 1933.

Parker was born in Livermore Falls, Me., in 1887, and received his bachelor of science degree in civil engineering from the University of Maine in 1909. His first job on the Fort Peck project was followed shortly by transfer to the Milk River project where he worked up from rodman to engineer in 13 years.

In 1923, he moved to the Lower Yellowstone project as superintendent. He became superintendent of the Shoshone project, Wyoming, in 1933, and worked on the Upper Snake River project as a construction engineer. He served continuously on the Columbia River project except for 3 years of military service from 1942-45 and from January, 1947, to July, 1948, when he was chief of the design and construction division on the Commissioner's staff in Washington, D. C.

Houston port director to retire soon

William F. Heavey, director of the port of Houston, Tex., will end his services with the Navigation Commission within a few months. He has been general manager of the Navigation District since 1948.

During his tenure, he spurred the port's $32-million improvement program and helped push to completion two new docks and made plans for another.

He was in charge during the recent purchase of 226 acres on the Ship Channel for $9 million. He also oversaw plans for the purchase of the Long Reach terminal with its eight berths and 32 acres of covered storage space, for $9.5 million.

A West Point graduate (1917), Heavey was a brigadier general during World War II, commanding an amphibious engineer brigade.

"MAN OF THE YEAR" in Northern California's construction industry is James B. Black (left) president, Pacific Gas & Electric Co. The award was made in San Francisco Oct. 30 at that city's Building Industry Conference Board's annual achievement award dinner. Presenting the award is Carl Gellert of Standard Building Co. while speaker of the evening Rear Adm. Lewis E. Moeller, CEC USN, looks on approvingly.

The award was made in recognition of PG&E's expansion program that will exceed $1 billion in value—the largest privately financed program in history. Spending has been at a $150-million annual rate.

The BICB award is one of the very few that represents all phases of the construction industry. Member organizations represent engineers, architects, contractors, home builders, building owners and materials producers. (ENR Photo)

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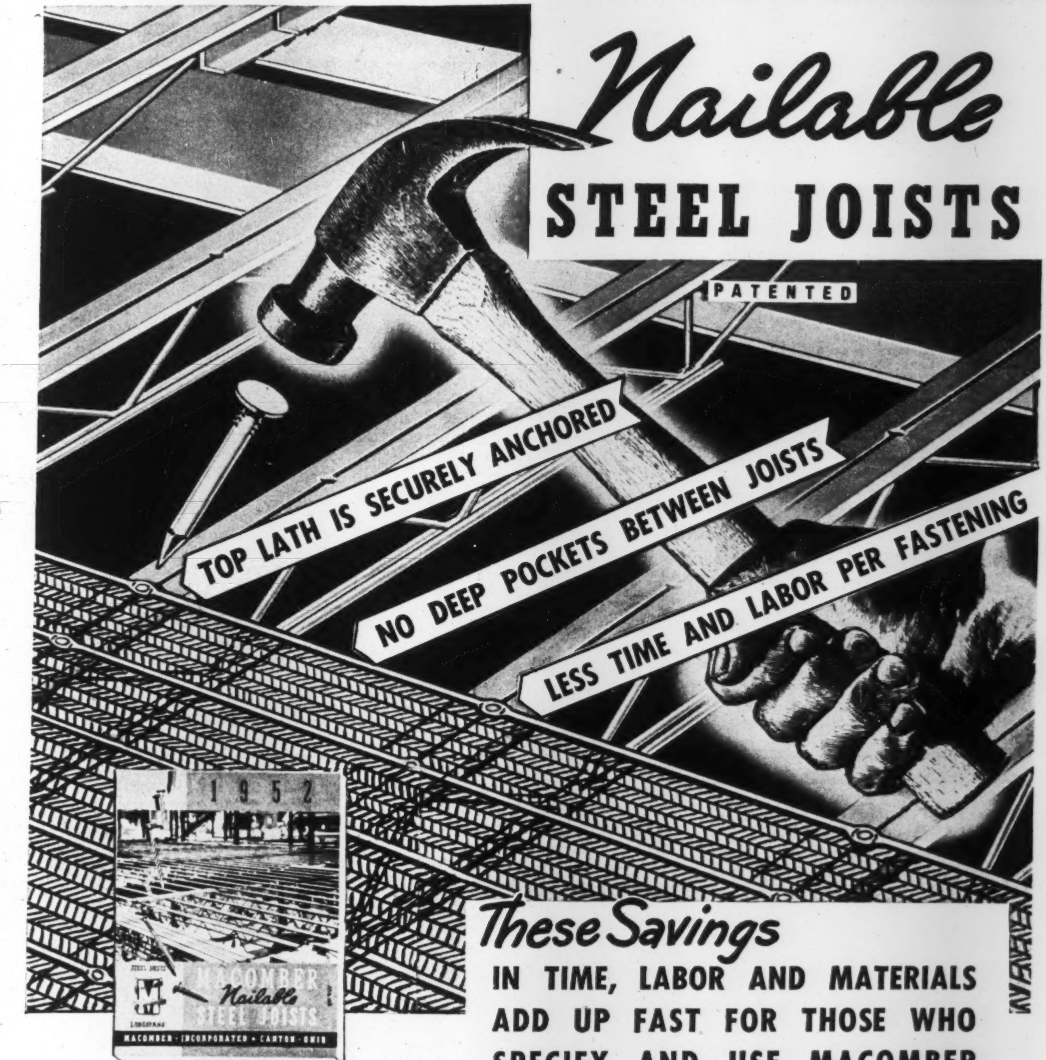
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Here are sound instructions on every phase of foundation engineering, from how to gather and interpret soil data, and how to plan the support of a structure, to how to handle the construction of that foundation. Describes all types of foundations, and gives examples of some actual substructures. **By Clarence W. Dunham, Professor of Civil Engin., Yale U. 669 pages, 461 illus., $8.00**

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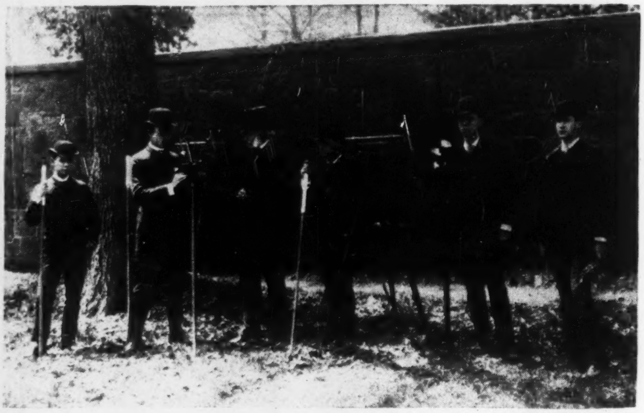
MEETINGS



Yale's 100 years of engineering

Recently the Yale School of Engineering celebrated its centennial with special lectures and demonstrations that showed a century's progress in engineering.

The principal speaker at the anniversary banquet was T. Keith Glennan, president of Case Institute of Technology and a member of the Atomic Energy Commission, whose subject was "Washington Challenges the Engineer." President A. Whitney Griswold of Yale gave the greetings from the university, and E. Carlisle Hunter, president of the Yale Engineering Society, presided.

At the annual joint meeting of the Harvard, Yale and Princeton engineering societies, the members viewed the special exhibits and demonstrations arranged by all departments of the Yale School of Engineering. One of the most interesting exhibits was the photograph, reproduced herewith, showing the late Prof. William A. Norton 70 years ago supervising five students of the 1883 class of Sheffield Scientific School in a field exercise in surveying.

T. Keith Glennan, left, and President A. Whitney Griswold.

Structural engineering discussed at Urbana

The second University of Illinois structural engineering conference was held at Urbana Nov. 12-14. The general chairman was Prof. James G. Clark, professor of civil engineering.

At the keynote session of Wednesday speakers and their subjects were: Shortridge Hardesty, "Trends in Railroad Bridge Design"; Raymond Archibald, "Trends in Highway Bridge Design"; and Ernest C. Hartmann, "Structural Uses of Aluminum in Buildings and Bridges."

Other subjects discussed include: Steel structures and connections, welded structures and connections, designing for dynamic loads, and soil exploration.

Two new honor chapters to be installed

At the recent convention of Tau Beta Pi, the national engineering honor society, two new undergraduate chapters were granted—at Fenn College, Cleveland, Ohio, and at Ohio University, Athens, Ohio.

HEAT on wheels and FAST

WHERE YOU WANT IT
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..at a flick... of the switch!

Silent Glow portable space heaters answer the call for heat *in a hurry.* Whenever, wherever heat is needed fast . . . in an unheated warehouse, for example, or a building under construction, a freight car, a forge shop, etc. . . . these compact units can be wheeled into position and put to work at *the flick of a switch.* Instantly, work-friendly warmth goes to work. The result: steady production, better efficiency, improved worker morale.

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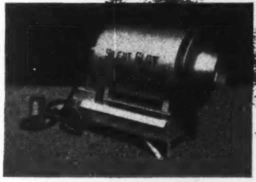
Prepare now to replace winter cold with Silent Glow heat. Full details on request.



Model A. Portable forced air heater ...ideal for space heating in buildings under construction. Heat output, 189,000 BTU per hour.

Model B. Portable forced air heater . . . same construction as Model A, except larger. Heat output, 350,000 BTU per hour.

Features

Safe . . . automatic controls anticipate any emergency.

Clean . . . Burns clean with no unburned hydrocarbons.

Low Cost . . . low original cost . . . low operating cost . . . uses No. 2 fuel oil.

Easy to Use . . . Instant heat at flick of switch . . . instant shut-off. Lights without matches or open torches.

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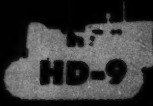
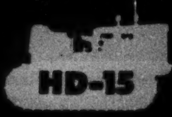


72 drawbar hp.
18,800 lb.



109 drawbar hp.
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175 net engine hp.
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Unequalled Lugability

The HD-9 and HD-15 build up greater drawbar pull faster . . . hold it longer than ever thought possible in gear transmission tractors.

For example, when tough going has pulled travel speed down 40 percent, these tractors will have increased their drawbar pull almost 20 percent over rated pull. They will lug down almost 45 percent from rated travel speed before drawbar pull even starts to fall off.

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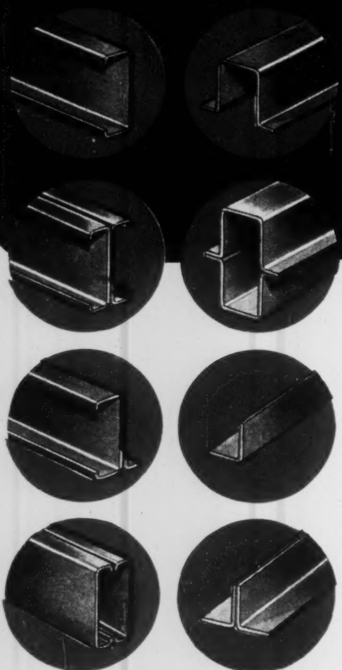

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All Stran-Steel Structural Sections meet the specifications of the American Iron and Steel Institute for the design of light-gage steel structural members. Your local Stran-Steel Framing dealer can furnish costs F.O.B. job site or quote on the material completely erected. Call him today.

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WRITE FOR THIS NEW BOOKLET. It gives complete engineering data on Stran-Steel Cold-Formed Structural Sections, plus a typical example of the economy possible with this modern building material.

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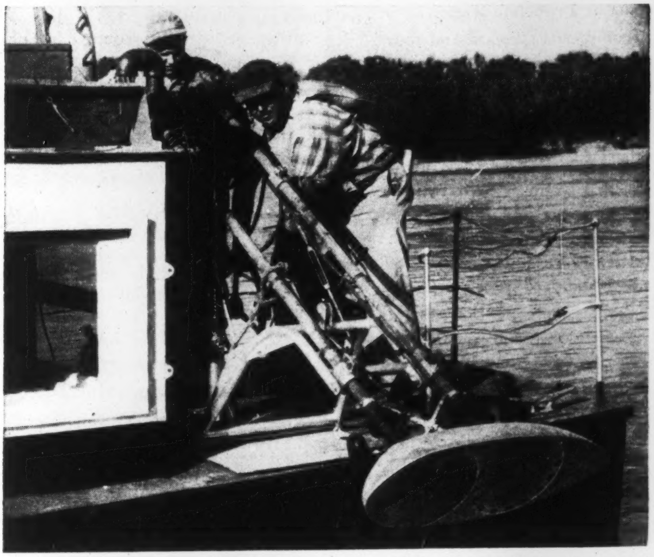
RESEARCH

Sedimentation sleuths board new boat

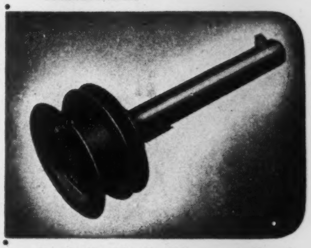
FLOATING LABORATORY of the Omaha District, Corps of Engineers, can stand against current in knee-deep water. A 220-hp engine powers the 28-ft craft. New gear for sampling and checking speed of flow make the steel-hulled vessel a tracer of shifting silt, 163 tons of which move down the Big Muddy each year. (Omaha World-Herald Photos by Savage)



FATHOMETER goes over the side for a check on depth. Missouri Basin river control plans depend on findings. Silt can determine effective life of main stem dams. Crew members of this boat-laboratory are able to record data from which contours can be plotted and changes in the stream bed can be noted. Information on silt movement is needed.

("Research" continued on page 78)

2 ways to make crane operations pay more



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Duo-Way Scoop has power steering, four speeds forward and four-speed reverse, planetary drive, full visibility in all directions. Dumping height with track extensions up to 26 feet. Dozer blade is hydraulically controlled, with adjustable angle.

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Uniquely designed houses being built for research

Two modular engineered houses, embodying special design and technological developments intended to lower building costs are being built at San Antonio, Tex., as a housing research project sponsored by the Housing and Home Finance Agency.

The houses were designed and engineered by the Housing Research Foundation of Southwest Research Institute under a contract with HHFA.

Flat-slab concrete floors without perimeter foundations, a new-type roof-truss that can be assembled without a jig table, and sheathing applied with edge clips and adhesives are among the technological developments being tried out.

The exterior walls of the houses are designed to use modular panels, which, 40 in. wide and 20 in. high, are interchangeable for design flexibility and consist of wall, window and ventilating units. They are erected as "curtain-wall" panels between a concealed aluminum framework.

The wall units are of stressed skin construction, can be built of a wide variety of materials, and are insulated. When placed between the aluminum studding, plastic tubing compresses to seal all joints tightly. No measuring, cutting or fitting is required for site assembly.

Joseph H. Orendorff, director of HHFA's Housing Research Division, said that movies are being taken of every stage of construction so that builders may benefit from experiences with the new techniques and design principles.

When the study of the economics and performance of the designs and units is completed, engineering drawings and details will be made available to home builders and component fabricators.

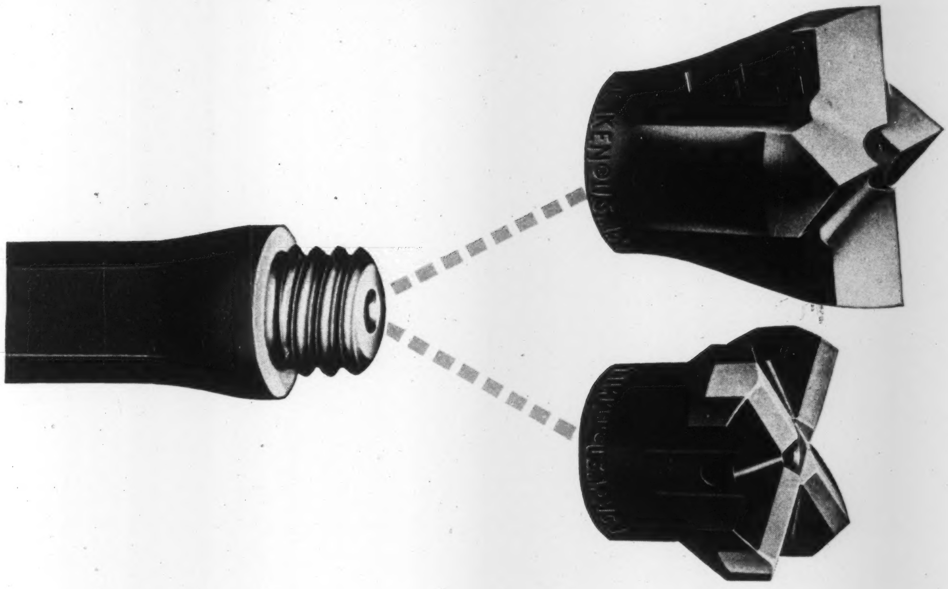
Use of engineering library is subject of questionnaire

Assuming that many engineers do not extract full value from engineering literature, the Engineering Literature Project of the American Society for Engineering Education by means of a questionnaire trying to find out what can be done about it.

The questionnaire is being sent to 1,000 engineers selected at random from society and association directories.

Copies are available from the Engineering Literature Project, ASEE, E. A. Chapman, Rensselaer Polytechnic Institute, Troy, N. Y.

USE THE SAME STEEL FOR BOTH ROCK BITS!



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DRILLERS need only one steel on the job when they use Timken® rock bits. Both Timken multi-use and carbide insert bits, in the same series, fit the same threaded drill steel.

In drilling ordinary ground, Timken multi-use bits, when correctly controlled and reconditioned, give you the lowest cost per foot of hole when full increments of steel can be drilled.

When you hit hard, abrasive ground, quickly switch to Timken carbide insert bits for maximum speed and greatest economy. They're your best bet for very deep holes, small diameter blast holes and constant gage holes.

Both Timken bit types have three big advantages: (1) made from electric furnace Timken fine alloy steel, (2) threads are not subject to drilling impact because of the special union developed by the Timken Company, (3) can be changed quickly and easily.

If you're in doubt about the best bits for *your* job, call upon the 20 years' experience of the Timken Company's Rock Bit Engineering Service. Engineers will study your problem and recommend the most economical bit for your job. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

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after fire turned our $4,000 diesel into $25 worth of junk

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Our camp is five and a half miles from town, and when the watchman saw flames breaking out of the power shed, he tried to fight the fire himself.

Meanwhile, fire-fighting equipment from the village and township arrived. But the fire was already out of control and our $4,000 diesel power unit was practically melted down. Best scrap offer anyone made was $25.

But the Hartford Fire Insurance Company paid us $4,000 in full, under our Contractors' Equipment policy.

The farther your operations are from fire and police protection, the more you need the broad coverage offered by our Contractors' Equipment policy.

This policy covers your equipment in storage, in transit, and while in use. And protects you against loss by fire, theft, explosion, as well as against damage done by landslide, collision, overturn, windstorm and many other hazards.

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Hartford

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Hartford Live Stock Insurance Company • *Hartford 15, Connecticut*

OBITUARIES

Donald MacDonald, II, 72, known as the father of the Alcan Highway, died in Claremont, Calif., Nov. 3. He went to Alaska as a locating engineer in 1914 for the Alaskan Railway, and later served in a similar capacity for the Alaska Road Commission. In 1927 he first presented his plan for the famed road.

Archibald G. Baker, 69, Port Huron, Mich., building and road contractor, and his son, Robert D., 37, died in an auto-crash Nov. 6.

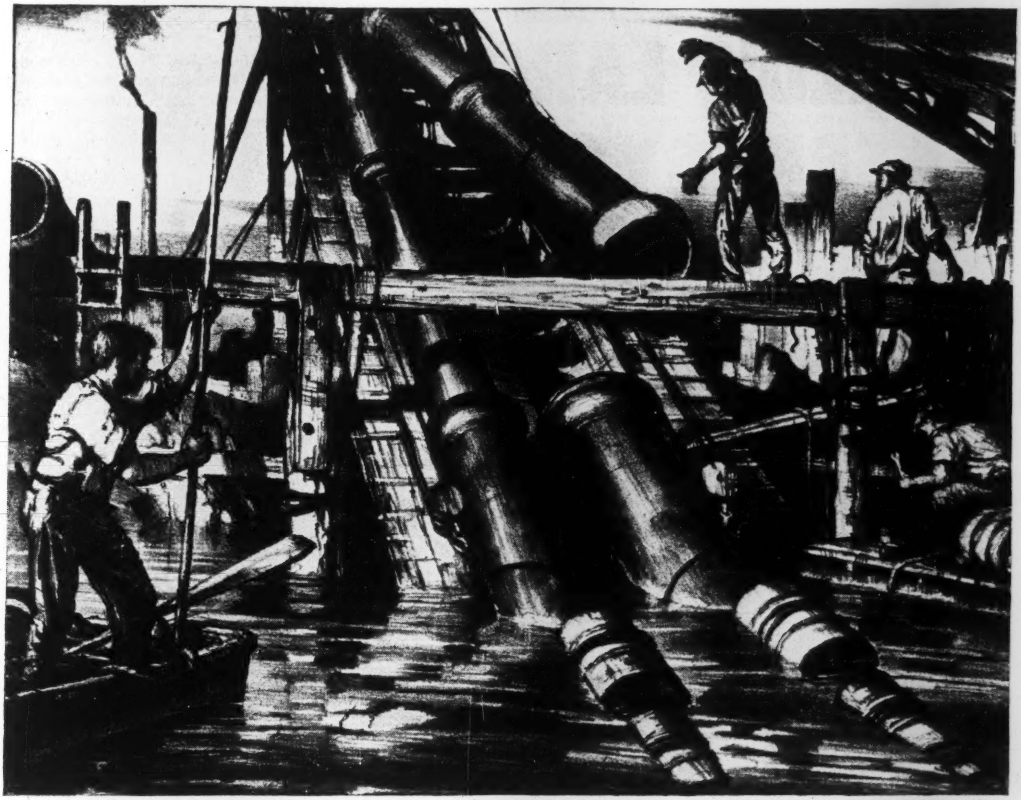
Harry S. Harding, 71, retired New York State sanitary engineer, died Nov. 2 at Albany. He had lived in Albany for 30 years.

Joseph F. Davis, 51, junior civil engineer for the New York State Department of Public Works, died Nov. 3 in Watertown, N. Y. He was a graduate of Clarkson Institute of Technology, Potsdam, N. Y., and joined the department in 1922.

Richard G. Pimentel, 38, general manager of the Condick Co., an engineering contracting firm in Berkeley, Calif., died Oct. 31 when his private plane crashed near Bend, Ore. The two other passengers, employed with the company at Pasco, Wash., were also killed. They were **John Earl,** 37, Walnut Creek, Calif., and **C. H. Morgan,** 44, Pasco. The Condick Co. working for the Corps of Engineers in Washington, has a joint contract with Thomas Rigging Co. on the Union Pacific Bridge over the Columbia River and the Northern Pacific Bridge over the Snake River. Both Pimentel and Earl were engineering graduates of the University of California. Earl was project manager on the Pasco job and Morgan was general foreman.

Richard Bird Ketchum, 78, emeritus professor of civil engineering, and dean emeritus of the college of engineering, University of Utah, an authority on railroad construction and research, and an 1896 C.E. graduate of the University of Illinois, died Nov. 6 in Urbana, Ill. He was instructor in civil engineering there in 1897-1898. During World War I he was supervising engineer in the construction of the U. S. Explosives plant, Nitro, W. Va., and in 1920 was chief engineer for construction of the Salt Lake County Memorial Bridge. He also served with the Salt Lake City water works, and with the Union Pacific and the Alton railroads.

(*"Obituaries" continued on page* 82)



Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

WHEN A CAST IRON water, gas or sewer line crosses a stream flexible joint pipe is frequently used. Joints that will deflect enough to meet installation and post-installation conditions and remain tight are most important in a submarine installation.

U. S. flexible joint pipe in all sizes, and pipe 30-inch and larger with other types of joints, are produced by the *pit cast* process. In sizes 2-inch through 24-inch, U. S. pipe is cast *centrifugally* in metal molds with bell-and-spigot, mechanical joint or plain ends.

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With millions at stake, no chances could be taken with inferior equipment. That's why the Automatic pH Control on this vast project is *100%* BECKMAN! In the giant treating plant where the water is softened and purified, BECKMAN pH Instruments control the pH of the liming process . . . the pH of the carbonation process . . . and the pH of the final treated water. *No finer tribute than this 100% installation could be paid to the unfailing dependability and outstanding quality of* BECKMAN *pH Equipment!*

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The Beckman Model R Automatic pH Indicator in conjunction with standard recorder-controllers provides automatic continuous pH measurement and control in a wide variety of industrial processes. May be wall or panel-mounted. Measurements can be made on grounded solutions permitting Beckman Immersion or Flow Electrode Assemblies to be installed directly in pipe lines and vats—eliminating need for grab sampling. You can set the instrument to maintain optimum pH condition at all times thus insuring more uniform control . . . eliminating "overdosing" and waste of chemicals.

Provides easily-read six-inch scale in three standard ranges: 0 to 7 pH, 3 to 10 pH or 6 to 13 pH in 0.1 pH divisions. Two other Model R-type instruments are also available: The Model RX Amplifier for use where an indicating meter is not desired; the Model RM Millivolt Indicator for measurement of oxidation-reduction potentials. Standard operation with 115-v. 50/60 cycle current. Send for your free copy of Data File 81-2.

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Robert C. Strehlow, 90, veteran specialist in the construction of exposition buildings, died Nov. 2, at Omaha, Neb. He built the Trans-Mississippi Exposition buildings at Omaha in 1898, and did work on expositions at St. Louis, Seattle, San Francisco, and other cities.

Warren S. Hall, 70, consulting engineer for United Engineers and Constructors, Inc., died in Chicago on Nov. 4. For 30 years he had been chief engineer for the Chicago district of the United States Steel Co.

Hyman R. Poriss, 60, of Hartford, Conn., died recently. He was founder and owner of H. R. Poriss Co., paving contractors, which he founded 25 years ago.

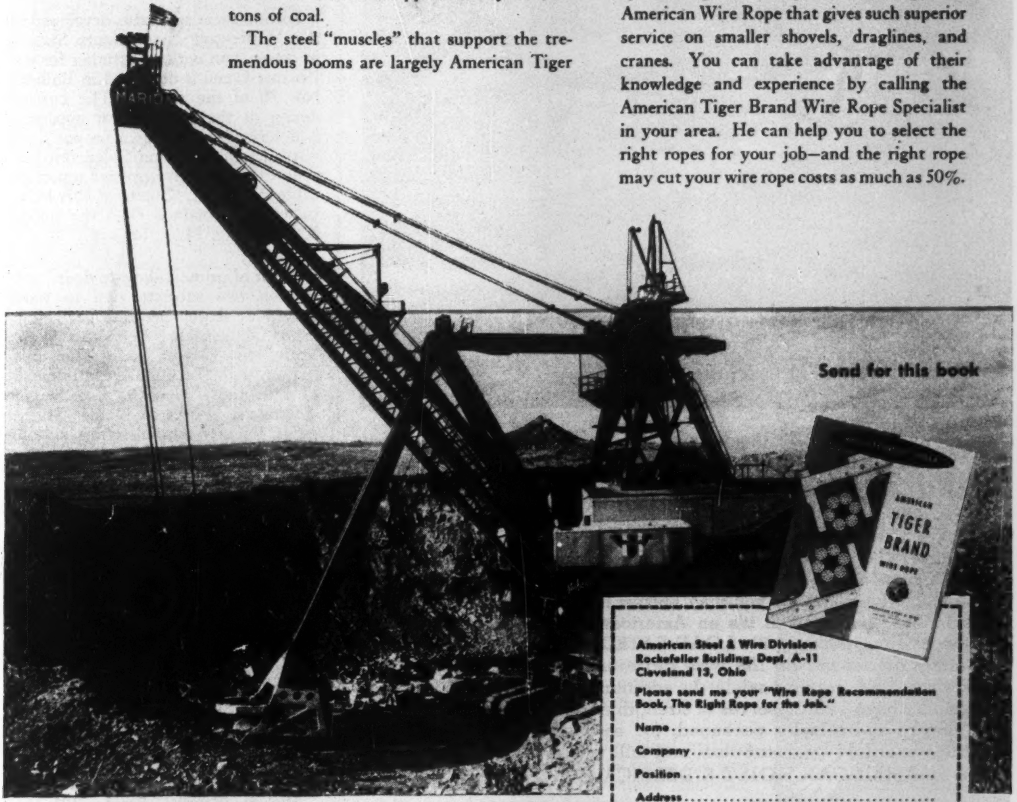
World's largest stripping shovels use

American Tiger Brand boom supports

The Hanna Coal Company owns and operates the largest stripping shovels in the world. One scoops up 50 cubic yards at a bite—the world's largest. Three others have 46 cubic yard dippers. Between them, they move about 4,000,000 cubic yards of overburden a month and uncover approximately 320,000 tons of coal.

The steel "muscles" that support the tremendous booms are largely American Tiger Brand Wire Rope. The boom support cables are 3⅝" and 4" in diameter, and approximately 91 feet long. The hoist ropes for the huge shovels are 2⅜" in diameter, and approximately 550 feet long.

The same engineers who designed these special big-shovel ropes, also design the American Wire Rope that gives such superior service on smaller shovels, draglines, and cranes. You can take advantage of their knowledge and experience by calling the American Tiger Brand Wire Rope Specialist in your area. He can help you to select the right ropes for your job—and the right rope may cut your wire rope costs as much as 50%.



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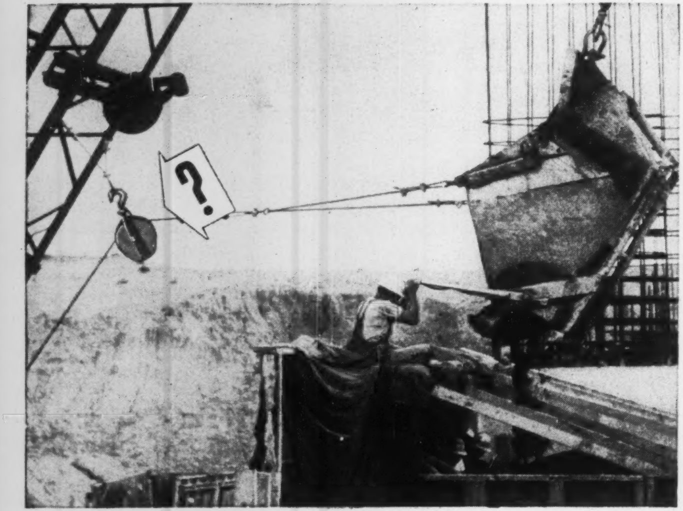

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Put yourself in the place of the man at the concrete bucket. If that block behind him should fail . . . what chance would he have? Somewhere, today, a man who works for you may entrust life and limb to a wire rope block in the same way. If it's an American CROSBY block, you can breathe easy . . . because it's LOAD-RATED. *Safe working capacity is clearly embossed on the side plate;* and every man using it can know when he's working safely. In addition, American CROSBY wire rope blocks have extra reserves of strength and toughness in every part. And they're individually packaged, for easy stocking, handling and identification. Sold by distributors and mill supply houses everywhere. Made by AMERICAN HOIST & DERRICK CO., ST. PAUL 1, MINN.

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BOOKS

• **License examinations** given to professional engineers in New York State in the years 1943 through June 1952 have been compiled by John D. Constance, 625 Hudson Terrace, Cliffside Park, N. J. The compilation is divided into three parts: Structural Planning and Design; Practical Application of Basic Engineering Sciences; and Economics and Practice. Copies of the complete set are $1.50.

• **Tortion-shear apparatus** developed at the Waterways Experiments Station in connection with soil studies for the Panama Canal is described in Bulletin No. 38 of the station. The current design of the torsion-shear apparatus is described as well as a proposed revised design. Recommended test procedures also are given, also a report on calibration tests. Copies of this bulletin can be obtained from the station at Vicksburg, Miss., for 75¢.

• **A pair of primers**—how-to-do-it booklets on two subjects vital to water pollution abatement—has been published by the Ohio River Valley Water Sanitation Commission. The first, written with the Ohio Department of Health, tells "How to Get Sewage Treatment Works in Ohio." It is a guide for city administrators and interested citizens in how to go about the task, through its engineering, legal and financial steps. The second, "Planning and Making Industrial Waste Surveys," is a product of ORSanCo's metal-finishing industry action committee; but it is written as a guide to all industry. It describes in practical terms how to measure volumes, get representative samples, and then calculate waste loads. Each booklet is available from the commission's office, 414 Walnut St, Cincinnati 2, Ohio, for $1.

New Engineering Books

ANALYSIS OF LANDSLIDES—Bulletin 49, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. 60 cents.

WEIGHING VEHICLES IN MOTION—Bulletin 50, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. 45 cents.

PUBLIC ROADS OF THE PAST—3500 B. C. to 1800 A. D. American Association of State Highway Officials 917 National Press Bldg., Washington 4, D. C. $3.00.

WIND SET-UP AND WAVES IN SHALLOW

Water—Technical Memorandum No. 27. Beach Erosion Board, Office of the Chief of Engineers, Department of the Army, Washington, D. C.

Report on Floods and Flood Damage—Prepared for Insurance Executives Association by Parsons, Brinckerhoff, Hall & MacDonald, 51 Broadway, New York 6, N. Y.

Sewer and Water Plan—Engineering Design Manual For Sanitary Sewerage and Drainage Facilities. Regional Planning Commission, Cuyahoga County, Ohio, 415 The Arcade, Cleveland 14, Ohio. $2.50.

Suggested Details of Concrete Masonry Construction—Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill.

Suggested Specifications for Construction of a Soil-Cement Base Course—Portland Cement Association, 33 W. Grand Ave., Chicago, Ill.

Survey of Course Offerings and Text Needs in Fluid Mechanics and Hydraulic Engineering. Obtainable from Carl E. Kindsvater, Professor of Civil Engineering, Georgia Institute of Technology, Atlanta, Ga.

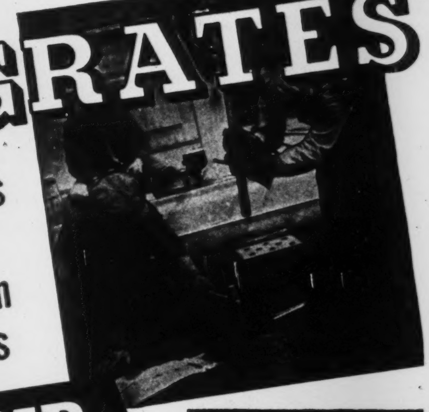
Aerodynamic Stability of Suspension Bridges, with Special Reference to The Tacoma Narrows Bridge—Part III, The investigation of Models of The Original Tacoma Narrows Bridge Under the Action of Wind—Bulletin No. 116, University of Washington Engineering Experiment Station, Seattle, Wash.

Proceedings of the Fifth Canadian Soil Mechanics Soil Mechanics Conference—Technical Memorandum No. 23, National Research Council of Canada, Associate Committee on Soil and Snow Mechanics, Ottawa, Canada.

Effect of Vibrationn on Air Content of Mass Concrete—Technical Memorandum No. 6-345, Waterways Experiment Station, Vicksburg, Miss.

Tourist Survey, Out-Of-State Motorists 1952—Pennsylvania Department of Highways, Harrisburg, Pa.

Loads on Reinforced Concrete Floor Slabs and Their Deformations During Construction—No. 15, Swedish Cement and Concrete Research Institute, Royal Institute of Technology, Stockholm, Sweden.



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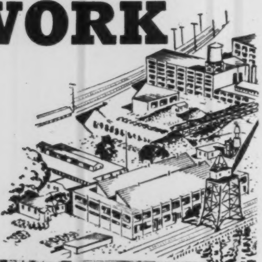

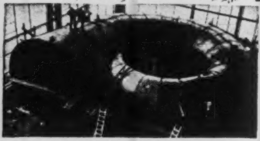

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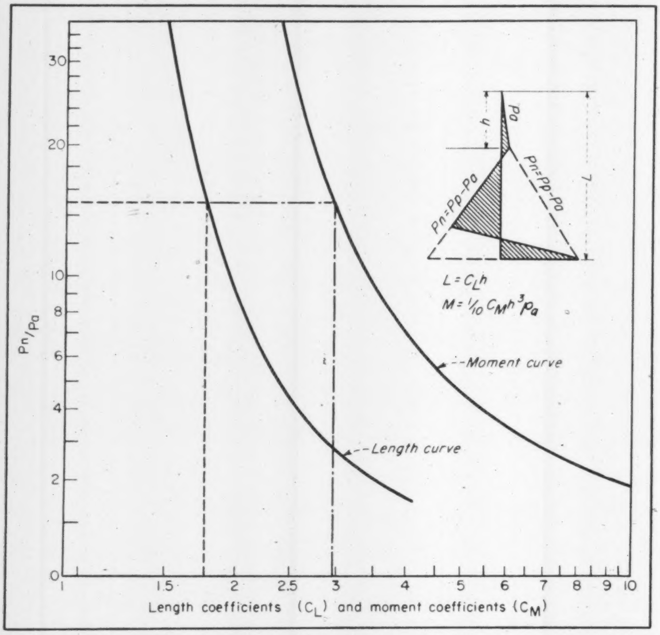

CURVES indicate coefficients for determining length and bending moment for cantilever sheetpiles in earth, without surcharge.

Chart simplifies sheetpile design

To reduce the time required for determining the length and bending moment for sheetpiles used as cantilevers in earth, the Huntington, W. Va., District of the Corps of Engineers utilizes the accompanying chart. It has been plotted for the condition of level surfaces on both sides of the piles and no surcharge. Points on the curves were located by solving 185 different loading conditions.

The analysis involves the solution of two simultaneous equations, one derived from the fact that the sum of the moments about any point must be zero and the other that the sum of the horizontal forces must be zero.

The soil is assumed to exert a hydrostatic-type pressure on the piles. Also, the unit passive resistance of the soil is assumed to increase uniformly with depth. But no consideration is given in the computation to frictional forces on the piles. These assumptions are commonly made and are permissible except when such accuracy is desired that laboratory analysis is required of soil strata.

The chart gives coefficients from which length and moment may be computed easily. C_L is the ratio of length of sheetpile, L, to height of fill, h; C_M is the ratio of moment, M, to the product of $\frac{1}{10}$ the active fill pressure and h^3.

As an example of the use of the chart, suppose a sheetpile wall is to be designed to retain 10 ft of fill. Active horizontal pressure of a fill, P_a, is 30 psf per ft of depth. Passive resistance of the soil, P_p, is 480 psf per ft of depth. Net pressure, P_n, is $480 - 30 = 450$, and $P_n/P_a = 450/30 = 15$.

Enter the chart at this value and proceed horizontally to the length curve, the intersection indicating a value for the length coefficient, C_L, of 1.77. Consequently, the length of the piles is 1.77×10, or 17.7 ft.

Now, enter the chart at $P_n/P_a = 15$ again, but this time find the intersection with the moment curve, which indicates a value for the moment coefficient, C_M, of 2.96. Hence, the bending moment in the piles is $0.1 \times 2.96 \times 30 \times 10^3$, or 1,880 ft lb per ft.—Ralph E. Mann, Corps of Engineers, Huntington, W. Va.

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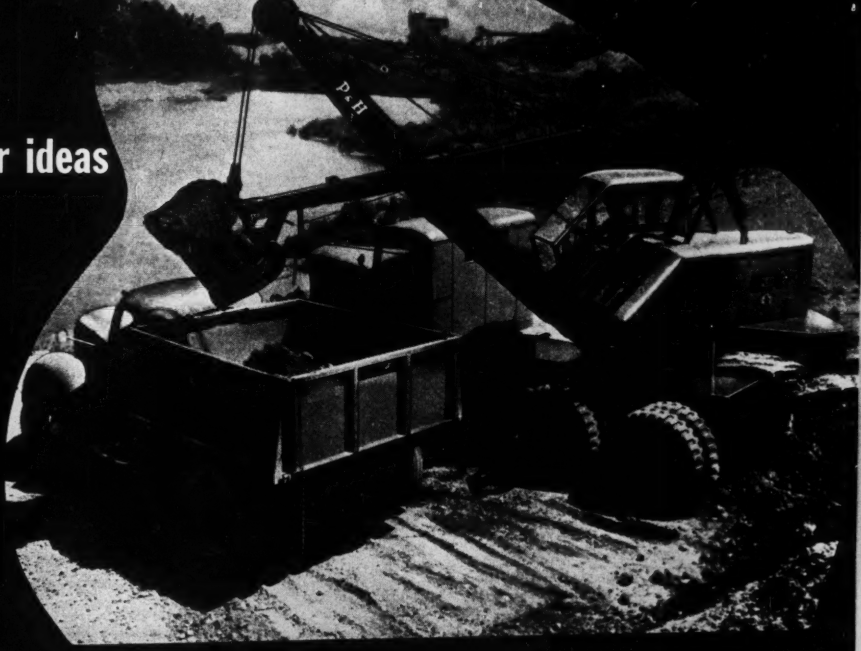

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WATER—Technical Memorandum No. 27. Beach Erosion Board, Office of the Chief of Engineers, Department of the Army, Washington, D. C.

REPORT ON FLOODS AND FLOOD DAMAGE—Prepared for Insurance Executives Association by Parsons, Brinckerhoff, Hall & MacDonald, 51 Broadway, New York 6, N. Y.

SEWER AND WATER PLAN—Engineering Design Manual For Sanitary Sewerage and Drainage Facilities. Regional Planning Commission, Cuyahoga County, Ohio, 415 The Arcade, Cleveland 14, Ohio. $2.50.

SUGGESTED DETAILS OF CONCRETE MASONRY CONSTRUCTION—Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill.

SUGGESTED SPECIFICATIONS FOR CONSTRUCTION OF A SOIL-CEMENT BASE COURSE—Portland Cement Association, 33 W. Grand Ave., Chicago, Ill.

SURVEY OF COURSE OFFERINGS AND TEXT NEEDS IN FLUID MECHANICS AND HYDRAULIC ENGINEERING. Obtainable from Carl E. Kindsvater, Professor of Civil Engineering, Georgia Institute of Technology, Atlanta, Ga.

AERODYNAMIC STABILITY OF SUSPENSION BRIDGES, with Special Reference to The Tacoma Narrows Bridge—Part III, The investigation of Models of The Original Tacoma Narrows Bridge Under the Action of Wind—Bulletin No. 116, University of Washington Engineering Experiment Station, Seattle, Wash.

PROCEEDINGS OF THE FIFTH CANADIAN SOIL MECHANICS SOIL MECHANICS CONFERENCE—Technical Memorandum No. 23, National Research Council of Canada, Associate Committee on Soil and Snow Mechanics, Ottawa, Canada.

EFFECT OF VIBRATIONN ON AIR CONTENT OF MASS CONCRETE—Technical Memorandum No. 6-345, Waterways Experiment Station, Vicksburg, Miss.

TOURIST SURVEY, Out-Of-State Motorists 1952—Pennsylvania Department of Highways, Harrisburg, Pa.

LOADS ON REINFORCED CONCRETE FLOOR SLABS AND THEIR DEFORMATIONS DURING CONSTRUCTION—No. 15, Swedish Cement and Concrete Research Institute, Royal Institute of Technology, Stockholm, Sweden.

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Klemp's engineers have exclusively speci the fabrication of gratings, such as Hextee Armor and Floorsteel Flexible Floor Armo inforcement of all surfaces where concrete are applied. In addition, they have dev bridge decking which is the most up-to-dat for modern bridges . . . prefabricated specifications.

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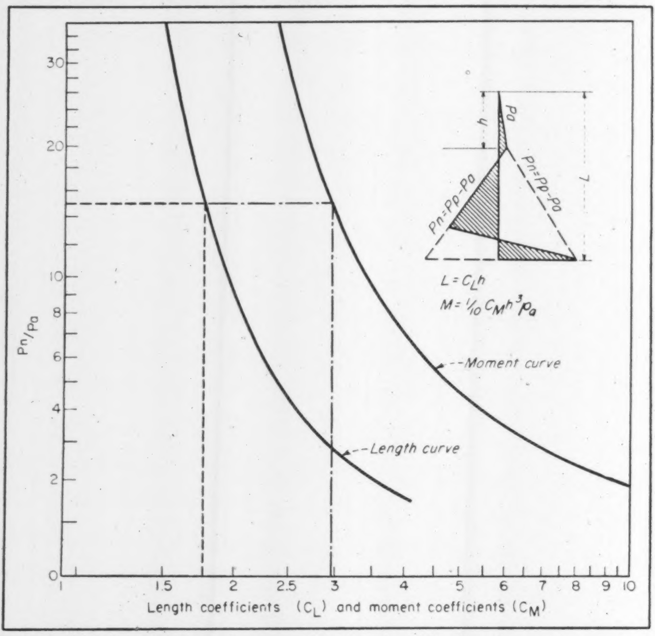

CURVES indicate coefficients for determining length and bending moment for cantilever sheetpiles in earth, without surcharge.

Chart simplifies sheetpile design

To reduce the time required for determining the length and bending moment for sheetpiles used as cantilevers in earth, the Huntington, W. Va., District of the Corps of Engineers utilizes the accompanying chart. It has been plotted for the condition of level surfaces on both sides of the piles and no surcharge. Points on the curves were located by solving 185 different loading conditions.

The analysis involves the solution of two simultaneous equations, one derived from the fact that the sum of the moments about any point must be zero and the other that the sum of the horizontal forces must be zero.

The soil is assumed to exert a hydrostatic-type pressure on the piles. Also, the unit passive resistance of the soil is assumed to increase uniformly with depth. But no consideration is given in the computation to frictional forces on the piles. These assumptions are commonly made and are permissible except when such accuracy is desired that laboratory analysis is required of soil strata.

The chart gives coefficients from which length and moment may be computed easily. C_L is the ratio of length of sheetpile, L, to height of fill, h; C_M is the ratio of moment, M, to the product of $\frac{1}{10}$ the active fill pressure and h^3.

As an example of the use of the chart, suppose a sheetpile wall is to be designed to retain 10 ft of fill. Active horizontal pressure of a fill, P_a, is 30 psf per ft of depth. Passive resistance of the soil, P_p, is 480 psf per ft of depth. Net pressure, P_n, is $480 - 30 = 450$, and $P_n/P_a = 450/30 = 15$.

Enter the chart at this value and proceed horizontally to the length curve, the intersection indicating a value for the length coefficient, C_L, of 1.77. Consequently, the length of the piles is 1.77×10, or 17.7 ft.

Now, enter the chart at $P_n/P_a = 15$ again, but this time find the intersection with the moment curve, which indicates a value for the moment coefficient, C_M, of 2.96. Hence, the bending moment in the piles is $0.1 \times 2.96 \times 30 \times 10^3$, or 1,880 ft lb per ft. —RALPH E. MANN, Corps of Engineers, Huntington, W. Va.

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FIELD AND OFFICE

Use of two colors in flags helps road survey work

Common practice when centerlining roads (establishing stations every 100 ft) is to attach a red rag about two inches square on each spike. While working as field engineers on such work for Sedgwick County, Wichita, Kan., I introduced a modification of this plan which proved to be a good timesaver.

Instead of using a red flag at all stations, we used a blue rag on each 500-ft station. Under that plan, when taking topography or sketching the road, if you missed a station you would not have to go over 500 ft before you would discover the error.

For example, if your notes recorded Sta. 300 + 00 and the station you were at had a red flag, it would mean that either your notes or the flag was in error. Then you would have to check back only to Sta. 345 + 00 to determine what the error was.—C. C. COLE, *Consulting Engineer, Wichita, Kan.*

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13-Year Repair Cost Record for 16 DORR Clarifiers

Years of Operation	13
Total Repair Cost	$848.83
Repair Cost *per unit*	$ 53.05
Repair Cost, per unit, *per year*	$ 4.08
% of Original Cost spent for all repairs in 13 years	0.6%

16 Dorr Sifeed* Clarifiers, for handling 123 M. G. D. of activated sludge at Easterly Treatment Plant, Cleveland, Ohio.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Mass., Cambridge**—HOUSING—B.A. 11/25—Cambridge Housing Auth., 51 Inman St., 123 housing units, Putnam Ave. and Callendar St., Proj. Mass. 3-3, $1,500,000. Plans deposit $100, Desmond & Lord, 6 Beacon St., Boston, archts. CD 4/23, under LB.

▲ **Mass., Framingham**—HOUSING—B.A. 11/26—Town, Framingham Housing Auth., N. L. McDonald, chn. Admin. Bldg., Arsenal Rd., 125 housing units, Pine Ridge Rd., Proj. PHA 28-1, $2,000,000. Plans deposit $50, refundable. Samuel Glaser & Assoc., 105 Newbury St., Boston, archts. CD 1/25/52.

† **R. I., Newport**—HOSPITAL—B.A. 11/25—P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., enlarging facilities in operating room, mess hall and galley at Bldg. 5, 3 story masonry, steel, concrete addn., at U. S. Naval Hospital, NOY 70938, Spec. 32434. Plans deposit $60. CD 7/11/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta,

W. H. Hinman, Inc., North Anson, Me. CA. **$439,763.** bit. grav. 5.03 mi. F.A. Secondary Proj. S 0267 (2), The Forks. Bids Nov. 5. CD 10/30.

† **J. R. Cianchette,** 120 Main St., Pittsfield, Mass. CA. **$670,445.** est. $700,000. roads, walks, utilities, Limestone Air Force Base, Eng. 19-016-53-3, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 10/31, under LB.

▲† **Farina Bros. Co.,** 429 Watertown St., Newton, Mass. CA **$1,469,183,** est. $2,079,000, electric test laboratory, Naval Shipyard, Spec. 30306, PORTSMOUTH, N. H. First Naval Dist., 495 Summer St., Boston, Mass. Bids Oct. 28. CD 11/5, under LB.

BUILDINGS

LOW BIDS ND CONTRACTS

▲ **Charles J. La Dolce,** Webster Heights, Berlin, Conn., Owner Builds, **$900,000,** 90 RESIDENCES, Cape Cod Homes, 45-acre tract Rte. 6, near Bristol Town Line, FARMINGTON, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

D. C., Wash.—B.A. 11/25—Govt. of Dist. of Columbia, Director of Sanitary Engineering, District Bldg., trunk water main MacArthur Blvd. N.W. between Dalecarlia and Macomb St. CD 7/14/44.

D. C., Wash.—B.A. 11/25—Govt. of Distr. of Columbia, Director of Highways, District Bldg., 2 box culverts on Minnesota Ave. north of G St. S.E.

New Jersey — UNDERGROUND STRUCTURES — B.A. 11/25—At office State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton, underground structures for traffic signal systems at various intersections on New Jersey State Highway in Atlantic, Bergen, Burlington, Camden, Essex, Gloucester, Hudson, Middlesex, Monmouth, Morris, Union and Warren Counties. Plans deposit $10. R. J. Abbott, state hy. comr.

D. C., Wash.—B.A. 11/26—Govt. of Dist. of Columbia, Director of Sanitary Eng., District Bldg., trunk water mains, 13 St. N.E. between Rhode Island Ave. and Otis St. CD 7/14/44.

N. J., Denville—B.A. 12/3—Denville Twp. Committee, Municipal Office, Fire House, Main St., sewerage system and pumping station. Plans deposit $25. Lee T. Purcell, 36 De Grasse St., Paterson, Zone 1, consult. engr.; adv. ENR 11/20. CD 1/24/46.

New York—LOADING STATION—B.A. 12/3—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 1, structures, Contr. 2, electrical work, Contr. 3, heating and ventilating, Contr. 4, plumbing for constr. of Marine Loading Station, North Shore, Queens Boro. Plans deposit $25.

Pa., Fox Chapel—B.A. 12/3—Fox Chapel Auth., Boro Bldg., Fox Chapel Rd., Allegheny Co., addns., alterations to water softening plant, Contr. 2, general const.; Contr. 3, heating and plumbing, Contr. 4, electrical work. Plans deposit $25. The Chester Engineers, 210 East Park Way, Pittsburgh, Zone 12, engrs.

† **D. C., Wash.**—COLD STORAGE, etc.—B.A. 12/4—U. S. Eng., First and Douglas Sts. N.W., cold storage and meat cutting plant, at Bolling Air Force Base ENG 49-080-53-34-(28), $100,000-$500,000. Plans deposit $25. Extended date. CD 11/16.

† **N. Y., Sampson**—FACILITIES—B.A. 12/9—U. S. Eng., 80 Lafayette St., New York, Zone 13, addnl. airfield facilities, Part III, Sampson Air Force Base, ENG 30-075-53-160. $290,000. Plans deposit $15. CD 9/14/51.

† **Del., Dover**—STRUCTURES, etc.—B.A. On Or About 12/18—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., structures, access road, and electrical work for G.C.A. Navigation Aids, Dover Air Force Base, ENG 36-109-53-200. CD 9/31/51.

† **N. J., Wrightstown**—DORMITORIES—B.A. On Or About 12/23—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., 22 airmen's dormitories or 21 or 22 SAC Barracks and 6 mess, administration bldgs., McGuire Air Force Base, ENG 36-109-53-159. CD 5/9.

BIDS ASKED—BUILDINGS

† **Md., Edgewood** — COMMUNICATIONS FACILITIES — B.A. On or About 11/27—U. S. Eng., 24 St., and Maryland Ave., P.O. 1715, Baltimore, Zone 3, communications facilities addn., Army Chemical Center, Eng. 18-020-53-31. CD 10/27/50.

† **Pa., Phila.**—BUILDING—B.A. On or About 12/17—U. S. Eng., 121 N. Broad St., Phila., Zone 1, addn. to fourth story of Bldg. 202 (Development Engineering Bldg.), Frankford Arsenal, Inv. No. Eng 36-109-53-137. Plans deposit $5. CD 9/14/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK** — Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Torrington Constr. Co., Inc., Torrington, Conn. LB **$1,144,933,** est. $1,275,000, 8.97 mi. Ausable Forks-Clintonville, S.H. 476, Clintonville-Keeseville, S.H. 651, FARC. 52-110, Clinton Co.;

Tully & DiNapoli, Inc., 127-50 Northern Blvd., Corona, N. Y., and **Gull Contg. Co., Inc.,** 33-15 Lawrence St., Flushing, N. Y. LB **$6,378,647,** est. $7,520,000, 1.29 mi. Exp., 0.28 mi. Access Major Deegan Expressway, Cont. 6, FA. MDE. 52-5, Bronx Co.;

S. J. Groves & Sons Co., Empire Bldg., Syracuse, N. Y. LB **$4,998,938,** est. $5,562,000, New York State Thruway Mohawk Sect.-Sub. 12BE and 12 PW (Indian Castle-Caroga Creek) Co. Rd. 65: Indian Castle Rd.; Farm Rd.: Co. Rd. 188 and Town Rd. 8.71 mi. Throughway and 3.3 mi. Acc. M.T. 52-16, S.T. 52-28. Montgomery and Herkimer Counties;

Vernon Christiana, Jr., 362 N. Genesee St., Utica, N. Y. LB **$663,610,** est. $709,000 5.8 mi. Works Corners-Colbys Corners, Paul Smiths-Gabriels, S.H. 9027, FASH. 52-17, FARC 52-109, Franklin Co.;

Hogeboom & Campfield, Inc., New Hartford, N. Y. LB **$656,148,** est. $761,000, 0.98 mi. New York State Thruway, Mohawk Sect.-Sub. 14 (Randall-Fort Hunter) Relocated Canajoharie-Fultonville, Pt. 2, SH 8371, M.T. 52-13, RC (MT) 52-107, Montgomery Co. Bids Nov. 6. CD 10/13.

† **Ernest Jarvis & Co., 153** Frelinghuysen Ave., Newark, N. J., LB, **$102,786,** electrical distr. sys. addns., for Veterans Administration Hospital, Proj. 3-4114, LYONS, N. J. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Nov. 4. CD 11/8.

▲† **MARYLAND AND D. C., WASH.**—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Va.

Charles H. Tompkins Co., 907 16 St. N.W., Wash., D. C. LB **$1,459,244.** bridge over Anacostia River, Baltimore-Washington Parkway, Proj. 1A6. Bids Nov. 6. CD 10/9.

BUILDINGS

LOW BIDS AND CONTRACTS

Robert Letz, Tuckerton, N. J., Separate Contracts. $3,500,000, RESIDENTIAL DEVELOPEMENT, State Hy. 9-4 and Center St., TUCKERTON, N. J.

John Tester & Son, Inc., 1620 2 St. S.W., Wash., D. C., CA, **$672,411,** Elementary SCHOOL, Wahler Pl. and 9 St. S.E., WASH., D. C. Dist. of Columbia Bd. Educ., District Bldg., Wash., D. C. Bids Oct. 23, awarded Oct. 31. CD 10/31, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **West Virginia**—B.A. 11/25—U. S. Eng., 237 Fourth Ave., Huntington Zone 18, relocation of Baltimore and Ohio R. R. Section 2 exploratory drilling at Sutton Reservoir Proj., Elk River, Serial No. CIVENG 46-022-53-28. Extended date. CD 10/22.

† **Tennessee**—B.A. About 12/10—U. S. Eng., 303 Federal Office Bldg., Nashville, Zone 1, First Stage excavation for Cheatham Power Plant, at Mile 148.7 on the Cumberland River, or approx. 23 mi. up-stream from city of Clarksville, Serial No. Civeng 40-058-53-21. CD 6/18.

† **Ga., Camp Stewart**—B.A. 12/11—U. S. Eng., 200 E. Julian St., Savannah, addn. site facilities (Mobilization and to) Eng 09-133-53-14. Plans deposit $50. Bid date changed. CD 10/15.

BIDS ASKED—BUILDINGS

Fla., Miami Beach—MOTOR COURT—B.A. After 12/1—Irving Venook, c/o Maurice S. Weintraub, archt., 235 Lincoln Rd., motor court, $350,000.

▲ **Miss., Indianola**—PLANT—B.A. 12/19—At office Mayor and Bd. Aldermen, City Hall, 1 story, steel, masonry 140,000 sq. ft. plant, for City of Indianola and Bd. Supervs. Sunflower Co., for use of Ludlow Mfg. & Sales Co., 211 Congress St., Boston, Mass. $1,295,000. Plans deposit $50. Chas. T. Main, Inc., 80 Federal St., Boston 10, Mass., engr. CD 6/25/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Regent Contg. Co.,** 1122 19th St. N. W., Wash., D. C., CA. **$2,700,000.** 8 barracks and one subsistence bldg., Naval Auxiliary Air Station, NOY 74886, Spec. 35797, OCEANA, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Oct. 14. CD 10/17, under LB.

A. C. Samford, Inc., Albany, Ga., LB **$143,463** sewage treatment plant for Veterans Administration Hospital, TUSKEGEE, ALA. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Nov. 4. CD 9/30.

▲† **Newport News Shipbuilding & Dry Dock Co.,** Newport News, Va., CA **$2,448,260,** three 20,000 hp. hydraulic turbines for Cheatham Dam Power Plant, on Cumberland River, **23 mi.** upstream from Clarksville. Serial No. Civeng **40-058-53-5,** TENNESSEE. U. S. Eng., 303 Federal Office **Bldg., Nashville 1, Tenn.** Bids Oct. 9. CD **8/19.**

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Victor Beauchamp, Inc.,** 6837 Fourth St. N.W., Wash., D. C., LB **$1,157,840,** Base Bid **$1,143,840,** alt. 1, 148 units row type HOUSES, Proj. Va. 4-4, ALEXANDRIA,VA. Alexandria Redevelopment & Housing Auth., Cameron Valley, Alexandria, Va. Bids Nov. 6. CD 10/16.

Raymond Guernsey, 1020 N.E. 104 St., Miami, Fla., Owner Builds, **$900,000,** 90 RESIDENCES, MIAMI, FLA.

▲ † **Alabama-Kentucky-Tennessee** — Tennessee Valley Auth., New Sprankle Bldg., Knoxville, Tenn., awarded contracts for Widow's Creek Steam Plant, Ala.; Colbert Steam Plant, Ala.; Johnsonville Steam Plant, Ky.; Shawnee Steam Plant, Ky.; Kingston Steam Plant, Tenn.; John Sevier Steam Plant, Tenn.; Gallatin Steam Plant, Tenn. Total **$20,938,592.**

WIDOW'S CREEK STEAM PLANT, ALA.

Leeds & Northrup Co., Rockland and Stenton Aves., Phila., Pa., **$50,560,** load control equipment;

Northeastern Engineering, Inc., Manchester, N. H, **$26,093,** power switchboards;

COLBERT STEAM PLANT, ALA.

Westinghouse Electric Corp., Sharon, Pa., **$63,096,** transformers and neutral reactors;

Stokes Electric Co., New Haven, Conn., **$83,112,** cable;

I-T-E Circuit Breaker Co., 1900 Hamilton St., Phila. 30, Pa., **$380,167,** and **Northeastern Engineering Inc.,** Manchester, N. H., **$139,698,** power switchboards and unit sub-stations;

Lakeside Bridge & Steel Co., 5303 N. 33 St., Milwaukee 9, Wis., **$694,400,** coal unloading cranes and barge pulling winches;

General Elevator Co., Bush and Ridgely Sts., Atlanta, Ga., **$71,354,** elevators;

Chain Belt Co., 4700 W. Mitchell St., Milwaukee 4, Wis., **$108,069,** water screens;

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name In order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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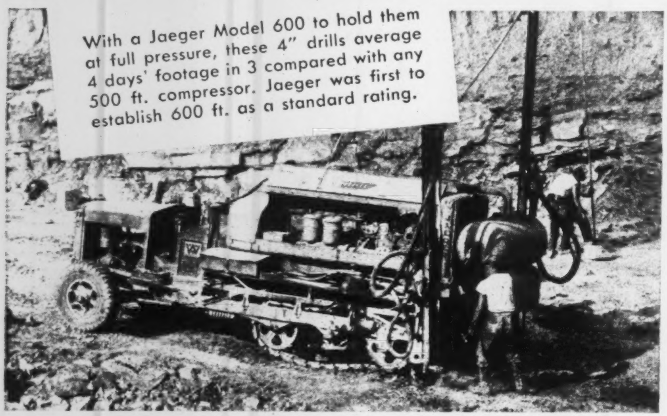

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JOHNSONVILLE STEAM PLANT, KY.

Link-Belt Co., 1116 Murphy Ave., Atlanta, Ga., **$50,244**, belt conveyors;

Leeds & Northrup Co., Rockland and Stenton Aves., Phila., Pa., **$50,560**, load control equipment;

SHAWNEE STEAM PLANT, KY.

T. J. Malone & Son, Inc., Ironton, O., **$52,824**, tile floors;

Revere Copper & Brass, Inc., P.O. Box 2075, 1301 Wicomico St., Baltimore, Md., **$479,998**, condenser tubes;

Henry Pratt Co., Dixon, Ill., **$62,856**, valves;

Chapman Valve Manufacturing Co., The Essex St., Indian Orchard, Mass., **$258,108**, cone and gate valves;

Fisher Governor Co., 1700 Fisher Bldg., Marshalltown, Ia., **$76,297**, heater drainers, pressure and level controllers;

Otis Elevator Co., 604 First St., Harrison, N. J., **$52,952**, elevators;

Cedar Bluff Stone Co., Inc., Cedar Bluff, Ky. **$429,936**, crushed rock;

Connery Constr. Co., 3900 N. Second St., Phila., 40, Pa., **$539,340**, air and gas ducts;

Republic Flow Meters Co., 2260 Diversey Parkway, Chicago 47, Ill. **$590,890**. control boards, controls and metering equipment;

Milwaukee Crane & Service Co., 3275 E. Van Norman Ave., Cudahy, Wis. **$55,000**, gentry crane;

Ingersoll-Rand Co., Phillipsburg, N. J. **$551,257**, boiler feedwater pumps;

Stringfellow Lumber Co., Inc., Brown Marx Bldg., Birmingham, Ala., **$132,083**, yellow pine;

KINGSTON STEAM PLANT, TENN.

North Brothers Insulating Co., 1021 Maryville Pike, Knoxville, Tenn. **$205,600**, installing insulation;

Northeastern Engineering, Inc., Manchester, N. H. **$28,542**, power and switchboards;

I-T-E Circuit Breaker Co., 1900 Hamilton St., Phila. 30, Pa. **$276,256**, power switchboards;

Fairbanks, Morse & Co., Beloit, Wis., **$372,274**, condenser circulating water pumps;

I-T-E Circuit Breaker Co., 1900 Hamilton St., Phila. 30, Pa. **$381,287**, and **Northeastern Engineering Inc.**, Manchester, N. H. **$139,697**, power switchboards and unit sub-stations;

Volunteer Portland Cement Co., 502 Gay St. S.W. Knoxville, Tenn. **$474,650**, cement;

A. B. Long Constr. Co., Harriman, Tenn., **$472,420**. concrete aggregates;

Rust Engineering Co., 575-77 Sixth Ave., Pittsburgh 19, Pa., **$206,710**, installation of refractories and ash hopper lining;

Griscom-Russell Co., Massilon, O., **$79,154**, evaporators and evaporator preheaters;

Tumlin & Groover, Inc., Acworth, Ga. **$101,062**, lumber;

Henry Pratt Co., 2222 S. Halsted St., Chicago, Ill. **$176,456**, valves;

Ingalls Iron Works Co., 620 4 Ave. S., Birmingham, Ala., **$2,274,980**, steel;

Southern States Equipment Corp., Georgia Ave., Hampton, Ga. **$112,944**, switches;

H. H. Robertson Co., Ambridge, Pa., **$78,287**, steel roof decking and accessories;

Worthington Corp., 426 Worthington Ave., Harrison, N. J. **$234,450**. Feedwater heaters, storage tanks, and accessories;

JOHN SEVIER STEAM PLANT, TENN.

Lambert Brothers, Inc., Alcoa Hy. S.W., Knoxville, Tenn. **$801,775**. Concrete aggregates crushed stone and riprap;

Allis-Chalmers Manufacturing Co., 864 S. 70 St., Milwaukee, Wis. **$800,094**, main transformers and neutral reactors;

GALLATIN STEAM PLANT, TENN.

General Electric Co., 1 Plastics Ave., Pittsfield, Mass. **$1,113,512**. Main transformers and neutral reactors;

Combustion Engineering-Superheater, Inc., 1032 W. Main St., Chattanooga, Tenn. **$8,607,542**. steam generating units.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Ill., Harrisburg—HOUSING B.A. 11/26—Housing Auth. of Saline Co., J. L. Steinmarch, exec. dir., First National Bank Bldg., Housing Project Ill. 43-1, consisting 94-row type dwelling units in 19 buildings, maintenance and management bldg., etc., on south side of here. Plans deposit $50. Edward J. Long, Springfield, engr. Lee Potter Smith, 2227 Broadway, Paducah, Ky., archt. CD 11/3.

SOON LETS CONTRACT—BUILDINGS

Mich., Midland—DIAL EXCHANGE UNIT—Michigan Bell Telephone Co., 1365 Cass St., Detroit, soon lets contract 2 story, brick, steel dial exchange unit, dial equipment, $300,000, Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, archt. CD 10/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

John Dehner, Inc., 1206 Clark St., Fort Wayne, Ind., LB, **$512,543**, piping and erection of high service pumping unit, FORT WAYNE, IND. Bd. P. Wks., City Hall, Fort Wayne, Ind. Bids Oct. 14. CD 10/8.

BUILDINGS

LOW BIDS AND CONTRACTS

Columbus Southern Development Co. 4416 E. Broad St., Columbus, O. Owner Builds. **$384,000**. 32 DWELLINGS, Poth Rd. and Woodcliff Dr., in Truro Twp., COLUMBUS, O.

▲ **Maxon Constr. Co.**, 131 N. Ludlow St., Dayton, O. CA, Approx. **$1,500,000**. 115,680 sq. ft. FACTORY, 2 story OFFICE bldg. for general offices and cafeteria on 138-acre tract, U. S. 25 and U. S. 40, near VANDALIA, O. Standard-Thomson Corp., 216 S. Main St., Dayton, O. CD 1/17/51.

▲ **Joseph J. Duffy Co.,** 4994 N. Elston St., Chicago, Ill., CA, **$3,570,720,** first stage of Harold L. Ickes HOMES, Public Housing Project, incl. 7 buildings containing 332 apartments, CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago 5, Ill. Bids Sept. 23. CD 8/26.

▲ **Evans Constr. Co.,** 1324 S. MacArthur St., Springfield, Ill., CA, **$2,468,000,** St. Vincent HOSPITAL, Hoover Field at north end of Walnut St., TAYLORVILLE, ILL. Sisters of Adorers of Most Precious Blood, Mother Mary Dorothy, Taylorville, Ill.

Ragner Benson, 4744 W. Rice St., Chicago, 51, Ill., CA, **$342,923,** 1 story, part bsmnt., brick stone community consolidated SCHOOL, WATERMAN, ILL. Waterman Bd. Educ., Waterman, Ill. Bids Sept. 24, awarded Oct. 27. CD 10/1, under CA.

† **O. W. Burke Co.,** 1032 Fisher Bldg., Detroit, Mich. CA Est. **$400,000.** constr. 4 combination test cells in jet engine PLANT Bldg. No. 25, 16 Mile Rd. and Van Dyke Rd., Sterling, for Dpt. Navy, DETROIT, MICH. Chrysler Corp., 341 Mass. Ave., Detroit, Mich. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., engr.-archt. CD 9/4/51.

▲ † **W. E. Wood Co.,** 4649 Humboldt St., Detroit, Mich. CA Est. **$1,000,000.** engine preparation PLANT, incl. test cells, fuel handling sys. for Dpt. Navy, ROMULUS, MICH. Lincoln-Mercury Div. Ford Motor Co., 6200 W. Warren St., Detroit, Mich. Bids Oct. 15. CD 10/2.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Tex., Austin** — CLASSROOM and TRAINING AIDS BLDG.—B.A. 12/2—U. S. Eng., 100 W. Vickery St., Fort Worth, classroom and training aids bldg., Bergstrom Air Force Base, Inv. No. ENG 41-443-53-25. CD 1/10.

† **N. M., Clovis**—WAREHOUSE—B.A. About 12/8—U. S. Eng., P.O. Box 1538, 2108 Central Ave. S. E., Albuquerque, 48x240 ft. AIO warehouse (52-ACRP-AF, D-1, Item 25) Clovis Air Force Base, Serial No. Eng 29-005-53-43. Plans deposit $25. CD 10/23/51.

Tex., Amarillo — B.A. 12/9 — City, City Hall, water pumping station, $300,000; 5 m.g. rein.-con. underground storage tank, $275,000. Freese & Nichols, Danciger Bldg., Fort Worth, engrs. CD 4/30.

† **Iowa** — AUTOTRANSFORMERS—B.A. 12/18—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo., one 40,000/53,333/66,667 kva autotransformers with lightning arresters for Sioux City Sub-station, Missouri River Basin Proj., Spec. DS 3833. L. N. McClellan, ch. engr.

† **N. M., Roswell** — PARKING APRONS — B.A. About 12/30—U. S. Eng., P.O. Box 1538, 2108 Central Ave. S. E., Albuquerque, addnl. parking aprons, Walker Air Force Base, Serial No. Eng 29-005-53-47. Plans deposit $75. CD 6/6, under LB.

▲ **Texas and Louisiana**—PIPE LINE—Bids Asked—Texas Pipe Line Co. and Associated Companies (Texas Pipe Line Co., Gulf Refining Co., Sinclair Pipe Line Co.) Texas Bldg., Houston, Tex., 165 mi. 16 in. welded joint refined products pipe line from Port Arthur, Tex. to Baton Rouge, La. $8,500,000; pumping station at Port Arthur, Tex., $375,000. CD 2/26, 3/6.

BIDS ASKED—BUILDINGS

Tex., Burkburnett—HOUSING—B.A. 12/1 — Burkburnett Housing Auth., Burkburnett, 52 housing units. $375,000. Paul G. Bentley Co. & Assoc., 1100 S. Ervay St., Dallas, archts. CD 11/6.

Tex., Munday—HOUSING—B.A. 12/1—Munday Housing Auth., Munday, 30 to 50 units of housing. Approx. $375,000. Paul G. Bentley Co. & Assoc., 1100 E. Ervay St., Dallas, archts. CD 11/6.

▲ **Tex., Terrell**—HOUSING—B.A. 12/15—Terrell City Housing Auth., Terrell, 70 housing units for immediate constr. $525,000; 70 housing units for constr. after Jan. 1, $525,000. Paul G. Bentley Co. & Assoc., 1100 S. Ervay St., Dallas, archts. CD 4/25.

S. D., Rapid City—HOUSING—B.A. On or About 12/16—U. S. Eng., 1709 Jackson St., Omaha, Neb., construct, manage, finance 580 family housing units, incl. 64 houses, 94 duplexes, 82 four-plexes, site preparation and utilities, at Rapid City Air Force Base, Weaver. Plans deposit $100. CD 12/18/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **IOWA**—State Hy. Comn., Ames,

Griffey Bros. Co., Marshalltown, Ia., LB. **$265,138.** b. conc. resurf. 18.233 mi. P-1038, Audubon and Shelby Counties; LB. **$230,978,** 16.099 mi. P-1041, Montgomery Co.; LB. **$79,652,** b. conc. 5.215 mi. P-1042, Montgomery Co.; LB. **$226,015,** b. conc. resurf. 15.585 mi. P-1040, Union Co.;

Flinn Paving Co., Council Bluffs, Ia., LB. **$62,434,** b. conc. resurf. 3.688 mi. P-1044, Mills Co.; LB. **$219,083,** b. conc. resurf. 14.152 mi. P-1045 Pottawattamie and Mills Counties;

Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis, Minn., LB. **$191,003,** b. conc. resurf. 14.515 mi. FN-45, Mitchell Co.; LB. **$157,177,** b. conc. resurf. 12.063 mi. FN-190, Howard Co.;

Midwest Pre-Cote Co., 7600 E. 17 St., Kansas City, Mo., LB. **$136,077,** b. conc. resurf. 9.369 mi. P-1039, Madison Co.;

Iowa Road Bldg. Co., Fairmont, Minn., LB. **$95,059,** b. conc. resurf. 6.25 mi. P-1037, Bremer and Chickasaw Counties. Bids Nov. 5. CD 10/22.

▲† **McCarthy Improvement Co.,** Kahl Bldg., Davenport, Ia., CA. **$1,588,837,** New Lock No. 19, Stage I, at Mississippi River, Inv. 11-117-53-13, IOWA. U. S. Eng., Clock Tower Bldg., Rock Island, Ill. Bids Oct. 15. CD 10/23, under LB.

† **Hough-Cowgur Co., Inc.,** 320 N. 4 St., St. Louis, Mo., LB. **$285,500,** bank stabilization on Conway County Levee District No. 8, dikes on Arkansas River,

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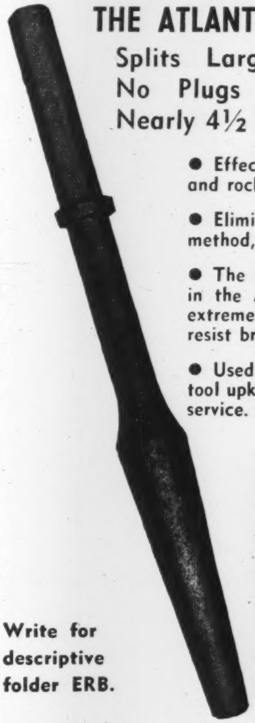

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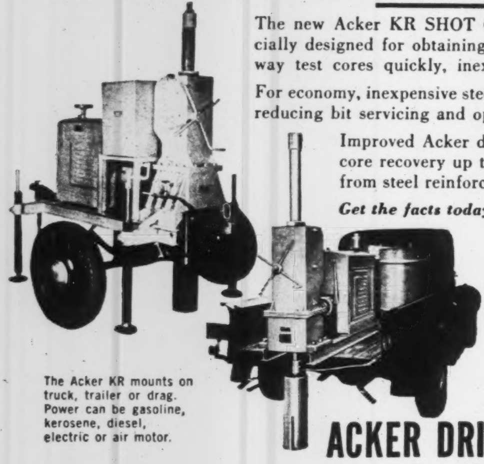

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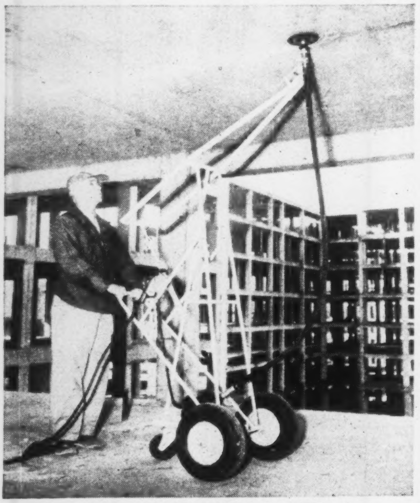

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Conway Co., ARKANSAS. U. S. Eng., 300 Broadway, Little Rock, Ark. Bids Oct. 31. CD 10/8.

† **McAlester-Davis Co.,** Exchange Bldg., Memphis 3, Tenn. LB. **$371,525,** est. $375,000, bank protection Lot 1, Eng. 34-066-53-21, Sequoyah Co., OKLAHOMA. U. S. Eng., P.O. Box 61, Tulsa 2, Okla. Bids Oct. 15.

Associated Pipe Line Contractors, Inc., 3272 Westheimer St., Houston, Tex., CA. **$177,165,** opening trench, removing 106 mi. 10¾ in. crude oil pipe, backfilling, reconditioning pipe, Erath, TEXAS. Texas Pipe Line Co., Texas Bldg., Houston, Tex. CD 10/27, under Louisiana.

Morrison Constr. Co., Hillboldt Bldg., East Bernard, Tex., CA. Approx. **$549,000.** 32 mi. 12 and 16 in. gas main, East Bernard to northwesterly direction, TEXAS. Tennessee Gas & Transmission Co., Commerce Bldg., Houston, Tex.

Humble Pipe Line Co., Humble Bldg., Houston, Tex. CA. **$545,000,** 30 mi. 14 in. crude oil line, Hawkins to Longview, TEXAS. Humble Oil & Refining Co., Humble Bldg., Houston Tex. CD 8/21.

▲ **Western Constr. Co.,** Hobbs, N. M., CA. Approx. **$1,980,000,** laying approx. 60 mi. 12 in. crude oil line from near Wichita Falls, Tex. to near Duncan, Okla. (this is south half of 127 mi. line Wichita Falls, Tex., to Oklahoma City, Okla.);

R. H. Fulton & Co., Lubbock, Tex., CA. **$2,211,000,** laying 67 mi. 12 in. welded joint crude oil line from near Duncan to Oklahoma City, Okla. (this is north half of 127 mi. line from Wichita Falls, Tex. to Oklahoma City, Okla.), TEXAS and OKLAHOMA. Continental Pipe Line Co., 1000 S. Pine St., Ponca City, Okla. CD 9/25/51.

City, Lubbock, Tex., Own Forces. **$115,000,** sanitary sewer collection lines, LUBBOCK, TEX. C. K. Harris, city engr. CD 7/11.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver, Colo.

Walker Brothers, Franktown, Colo., CA, **$94,255,** est. $118,967, grading, structure 3.634 mi. State Hy. No. 86, S 0040 (2), Douglas Co.;

E. J. Rippy & Sons, New Castle, Colo., CA, **$210,413,** est. $211,332, grading, structures, surf. 5.436 mi. State Hy. No. 14, AA-1-Sect. 4, Mesa Co. Bids Oct. 30, awarded Oct. 31.

† **Newport News Shipbuilding & Dry Dock Co.,** Newport News, Va. LB **$835,800.** three 8,400 hp. hydraulic turbines for Little Porcupine Power Plant, Missouri Souris Div., Missouri River Basin Proj., Spec. DS 3793, MONTANA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Oct. 30. CD 10/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **McMurray & Co.,** 5414 Franklin St., Des Moines, Ia., Owner Builds, **$1,500,000,** DWELLING, 19 and Locusts Sts., WEST DES MOINES, Ia.

C. L. Rogers, 76 and Blue Ridge Sts., Kansas City, Mo. Owner Builds. est. **$400,000.** 50 DWELLINGS, near KANSAS CITY, MO. H. C. Anset, Finance Bldg., Kansas City, Mo., archt.

West Texas Utilities Co., Abilene, Tex. Purchase and Hire. **$375,000,** electric POWER PLANT unit and imprvs., ABILENE, TEX. CD 9/25/51.

Casa View Lake Addition, 2722 Lawrence St., Dallas, Tex., Owner Builds. **$350,000.** Group 1, 35 DWELLINGS, DALLAS, TEX.

▲ **Brown & Root, Inc.,** Box 3, Houston, Tex. CA Approx. **$1,350,000,** CAUSTIC SODA MFG. PLANT expansion; Approx. **$1,000,000,** PERCHLORETHYLENE PLANT MFG. UNIT; Approx. **$1,500,000,** VINYL CHLORIDE MFG. UNIT; Approx. **$1,250,000,** POLYVINYL CHLORIDE MFG. UNIT; Approx. **$775,000,** chlorine unit expansion; **$140,000,** underground utilities, sewers, water facilities, and distr., gas lines;

H. K. Ferguson Co., 2620 Main St., Houston, Tex. CA Approx. **$775,000,** WAREHOUSING; **$325,000,** increased OFFICE HOUSING AND PERSONNEL FACILITIES; Approx. **$375,000,** laboratory; Approx. **$350,000,** misc. and variegated const. in plant bldg. zone, HOUSTON, TEX. Grand total $7,840,000. Diamond Alkali Co., 1006 Main St., Houston, Tex. CD 11/18/48, 8/14/52, 9/12.

▲ **M. A. B. Constr. Co.,** Milby Hotel, Houston, Tex. and **Bergstrom & Yates,** Box 633, Marshall, Tex., CA. **$3,500,000,** construct, manage, finance 400 units single DWELLINGS, 3-bedroom duplexes, 4-bedroom fourplexes, Serial No. Eng 29-005-53-7, ALAMOGORDO, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Sept. 30, awarded Nov. 3. CD 10/8, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Idaho**—POWER CABLE—B.A. 12/2—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., 11,265 ft. 15-kv insulated power cable for use at Albeni Falls Dam, Inv. 53-32. CD 9/12/44, under Earthwork, Waterways.

† **Arizona**—B.A. 12/10—Bureau Reclamation, Dpt. Interior, Yuma, earthwork, concrete lateral lining and structures, Unit 3, Mohawk Distribution System Wellton-Mohawk Division, Gila Proj. 18 mi. east of Wellton, Spec. DC-3836; adv. ENR 11/20. CD 9/21/44.

† **Wash., Moses Lake**—WELL DRILLING—B.A. 12/11—U. S. Eng., City-County Airport, Walla Walla, Wash. well drilling, Larson Air Force Base, ENG 45-1653-22. W. H. Mills, City-County Airport, Walla Walla, Wash., engr. CD 12/28/49.

Washington—TRANSMISSION LINE—B.A. 2/2—Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore. clearing 43.4 mi. right of way constr. access roads Carson Ross section, McNary-Ross 345-kv line Inv. 6792, Skamania and Clark Counties. Plans deposit $1. L. C. Stewart, 827 N.E. Oregon St., Portland, Ore., engr. CD 2/5/51.

BIDS ASKED—BUILDINGS

† **Idaho, Arco**—ADMINISTRATION, etc.—B.A. On Or About 1/5—Idaho Operations Office, Atomic Energy Comn., Idaho Falls, administration and service buildings, assembly and maintenance buildings, warehouse, pumphouse utilities, etc. at National Reactor Testing Station. Plans deposit $100. CD 3/24/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **U. S. Eng.**, Pittock Block, Portland, Ore. cancelled bids to have been opened July 10, bank protection and channel imprvt., Seavey Bridge location, Willamette River, Lane Co., CIVENG 35-026-53-213, OREGON. CD 6/11.

† **P. J. Artukovich & M. Miller Co.**, 13305 S. San Pedro St., Los Angeles, Calif., CA, **$671,380**, steel siphon and structures, San Luis Rey River Crossing, N. Station 1901 to 1968 plus 15, San Diego Proj., near Fallbrook, Spec. DC 3807, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Oct. 16, awarded Oct. 30. CD 10/27, under LB.

Griffith Co., 1060 S. Broadway, Los Angeles, Calif., CA **$165,570** paving, grading misc. areas in Long Beach Harbor, LONG BEACH, CALIF. Long Beach Harbor Dpt., 1333 El Embarkadero, Long Beach, Calif. Bids Nov. 3.

† **Fredericksen & Kasler, and Lowe & Watson**, Box 46, Montalvo, Calif., CA, **$112,492**, est. $125,000, paving service area at Edwards Air Force Base, ENG 04-353-53-65, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Oct. 29, awarded Oct. 30. CD 10/2.

BUILDINGS

LOW BIDS AND CONTRACTS

J. G. Watts Constr. Co., Marion Bldg., Seattle 4, Wash., LB, **$510,159**, general contract, 5 story bsmnt,. rein.-con. CLINIC, SEATTLE, WASH. Mason Properties Corp., 901 Seneca St., Seattle, Wash. Bids Nov. 4. CD 10/22.

▲ **Harvey & Rose**, Box 736, Arcadia, Calif., CA, **$1,323,500**, Estrada Courts Low-rent HOUSING, Project Cal 4-20, LOS ANGELES, CALIF. Housing Auth. of City of Los Angeles, 1401 E. First St., Los Angeles, Calif. Bids Oct. 1, awarded Nov. 4. CD 10/9, under LB.

H. M. Hodges & Pozzo Constr. Co., 5531 Venice Blvd., Los Angeles, Calif., CA, **$938,844**, 3 story, 55,500 sq. ft. rein.-con. home ECONOMICS bldg., LOS ANGELES, CALIF. University of California, 405 Hilgard St., Los Angeles, Calif. Bids Sept. 30. CD 10/7, under LB.

▲ **Havstad & Jensen**, 1721 New Jersey St., Los Angeles, Calif., CA, **$2,000,000**, 6 story, rein.-con. HOSPITAL addn., LOS ANGELES, CALIF. College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles,

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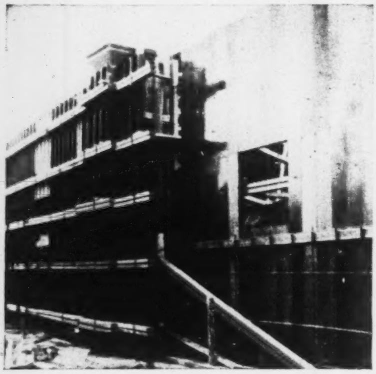

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Calif. Earl Heitschmidt, 2010 Wilshire Blvd., Los Angeles, Calif., archt.

▲ **Riha Constr. Co., & B. C. Hamman,** 4859 El Cajon Blvd., San Diego, CA, **$1,603,000,** sixteen 113,390 sq. ft. Mission Bay Senior High SCHOOL buildings, SAN DIEGO, CALIF. San Diego Unified School Dist., 825 Union Ave., San Diego, Calif. Bids Oct. 21, awarded Nov. 3. CD 10/29, under LB.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U. S. Eng.,** Anchorage, Alaska cancelled bids to have been opened Nov. 6 drilling one each 250 ft. deep 18 in. well at Ladd and Eielson Air Force Bases and one 1,200 ft. deep 8 in. well at Elmendorf Air Force Base, Inv. No. ENG 95-507-53-18, ALASKA. Will re-advertise.

CANADA

BIDS ASKED—BUILDINGS

Ont., Eastview—SCHOOL—B.A. 11/24—Bd. Trustees Catholic Separate School Bd., G. Metiver secy., Eastview, addns. to Assumption and Ducharme Schools. $300,000. Plans deposit $10. A. Martineau, 200 Bay St., Ottawa, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

R. Timms Constr. & Eng. Co. Ltd., 221 Burgar St., Welland, Ont., CA, **$450,004,** central heating plant alterations, awarded Oct. 30;

Johnson Bros. Co. Ltd., 37 Market St., Brantford, Ont., CA, **$185,953,** barrack block imprvs. at air force training station, CLINTON, ONT. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. Awarded Oct. 15.

Canadian Comstock Co. Ltd., 206 Laird Ave., Leaside, Ont., CA **$406,650,** electrical distr. system DUNNVILLE, ONT. Govt. of Canada, Dpt. National Defence, Cartier Sq., Ottawa, Ont. Defence Constr. Co. Ltd., 56 Lyon St., Ottawa, Ont., engrs.

▲ **Ross-Meagher Ltd.,** 9 Echo Dr., Ottawa, Ont., CA, **$1,775,000,** new air material command headquarters bldg., at Rockcliffe Airport, Job. 2156, OTTAWA, ONT. Defence Constr. Ltd., 39 Eglinton Ave. E., Toronto, Ont. Bids Oct. 14. CD 10/1.

BUILDINGS

LOW BIDS AND CONTRACTS

Angus Robertson Ltd., 57 Bloor St. W., Toronto, Ont., CA, **$300,000,** 1 story, 40,000 sq. ft., pre-fabricated PLANT for iron mining development, MARMORA, ONT. Bethlehem Mines Corp., Marmora, Ont. Awarded Oct. 15.

Zeller's Contg. Co., Ltd., Gage Ave. S., Hamilton, Ont., CA, **$523,925,** HOUSING DEVELOPMENT, incl. 70 units, Stamford Twp., MacLeod and Drummond Rds., NIAGARA FALLS, ONT. Central Mortgage & Housing Corp., 39 Queen St., St. Catherines, Ont. Bids Oct. 23, awarded Nov. 3. CD 10/15.

Foundation Co. of Canada Ltd., 1220 Bay St., Toronto, Ont. CA, **$485,748,** four 1 story, 61x202 ft., steel SCHOOLS, OSHAWA, ONT. Bd. Educ., E. G. Bunker, bus. admin., Oshawa, Ont. Bids Oct. 16, awarded Nov. 3. CD 10/1.

Dubard & Frere Ltee, 5256 Saranac Ave., Dorval, Que., Owner Builds, **$850,000,** 70 HOUSING units, Sources Rd., DORVAL, QUE. Thibodeau & Thibodeau, 1247 Guy St., Montreal, Que., archts.

Walter G. Hunt Co. Ltd., 1405 Bishop St., Montreal, Que., CA, **$300,000,** 1 story, 75x160 ft., rein.-con., OFFICE, Decarie Rd. near Duncan Rd., MONTREAL, QUE. Wawanesa Mutual Insurance Co., 132 St. James St. W., Montreal, Que. A. L. Perry, 1434 St. Catherine St. W., Montreal, Que., archt.

City Constr. Co., Ltd., 275 St. Zotique Sts., Montreal, Que., CA, **$400,000,** 5 story, 57x97 ft., rein.-con. stone ORPHANAGE, on Riverside, PONT VIAU (Postal District) (Montreal) QUE. Reverend Missionaries Etrangers, 1090 St. Hubert St., Montreal, Que. R. & D. Charbonneau, 6260 Cote des Neiges Rd., Montreal, Que., archt. R. Fontin, 3581 Northcliffe Ave., Montreal, Que., engr.

Plante Constr. Ltd., 94 Lakeshore Ave., Rouyn, Que., CA, **$300,000,** rein.-con., steel, brick SCHOOL, ROUYN, QUE. School Comn., 303 Richard St., Rouyn, Que. Bids Sept. 1. CD 8/20.

Proposed Projects

WATER SUPPLY

Calif., Daly City—City, City Hall, voted **$380,000** bonds, modernization of water system. CD 10/2.

Ill., Aurora—City, City Hall, water and sewer extensions, **$450,000.** G. H. Deuchler, 659 S. River St., city engr.

▲ **Minn., St. Louis Park**—Village, defeated **$1,650,000** bonds Nov. 4, water treatment plant. CD 10/22.

Minn., St. Paul Park—Village, voted **$800,000** bonds Nov. 4, WW and sewerage sys. CD 4/23.

▲ **Mo., Kansas City**—City, c/o Melvin P. Hatcher, dir. Water Dpt., City Hall, voted bonds Nov. 4, expansion and flood-proofing water sys., increased facilities, etc. **$16,000,000,** Jas. B. Ramsey, water dpt. engr. CD 9/30.

Mo., Kansas City—Jackson Co., Independence, voted **$430,000** bonds Oct. 21, water sys. enlargement, Water Dist. 1, C. A. Haskins, Finance Bldg., Kansas City, Mo., consult. engr.

Nev., Ely—City, City Hall, voted **$500,000** bonds, water sys. imprvs.

▲ **Tex., Corpus Christi**—Lower Nueces River Water Supply Dist., Jones Bldg., constr. domestic water supply dam in vicinity of Mathis, Tex., on tributary Nueces River, (Wesley Seale Dam), earthfill and concrete dam, 5,700 ft. long, 84 ft. high, bottom width of 465 ft., top width 45 ft. to impound 300 acre ft. water, to be located 1,000 ft. below existing Mathis Dam in San Patricio and Jim Wells Counties. **$15,000,000.** Myers & Noyes, Wilson Bldg., consult. engrs. CD 10/24.

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., constr. small earthen and concrete dam on West Fork Trinity River (for domestic water supply-emergency) **$250,000;** tapping (pipe line) Red River, from point near Gainesville and running to Dallas city limit, **$550,000;** pipe line tapping of Eagle Lake, near Fort Worth and running to Dallas City Limits, **$750,000.** Forrest & Cotton, Praetorian Bldg., consult. engrs. CD 5/8.

SEWERS, WASTE DISPOSAL

▲ **Calif., Los Angeles**—Los Angeles Flood Control District 751 S. Figueroa St., Los Angeles, voted **$179,000,000** bonds for storm drains.

▲ **Calif., San Diego**—City, Civic Center, voted $3,500,000 bonds, storm drain program, **$7,000,000.** CD 9/17.

Ky., Maysville—City, sewage treatment plant, **$300,000.**

Mo., Lee's Summit—City, voted **$447,000** bonds Oct. 21, sewerage sys., extens., moderation, B. L. Oliver & Co., 1805 Grand St., Kansas City, Mo., consult. engrs.

▲ **O., Cincinnati**—City, City Hall, voted **$1,710,000** bonds Nov. 4, sewer imprvs. CD 4/20/50.

▲ **O., Cleveland**—City, City Hall, voted bonds Nov. 4, sewage disposal expansion, **$6,000,000;** sewer constr. and expansion **$7,000,000.** CD 9/8.

O., Gibsonburg—City, intercepting sewers and sewage treatment plant on Portage River. **$415,000-$500,000.** Kinkbeiner, Pettis & Strout, 518 Jefferson St., Toledo, engrs. CD 6/22/50.

▲ **O., Lima**—City, City Hall, voted bonds Nov. 4, sewage treatment plant expansion and sewerage. **$1,750,000.** CD 10/24.

BRIDGES

Calif., Martinez—Contra Costa Co. Highway Dept., Walter T. Paasch, Clk. Bd. Supervs., Hall of Records, voted bonds, 4-lane underpass, Antioch, **$350,000.**

Ill., Chicago—Cook Co., County Bldg., bridge on Central Park Ave. over Congress Expressway. **$350,000.** CD 5/7/45.

▲ **O., Cleveland**—City, City Hall, voted bonds Nov. 4, imprv. bridges. **$1,000,000.** CD 9/8.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City,

Cleveland Co.—bridge over South Canadian River at Norman, **$1,600,000.** CD 7/10/51.

Canadian Co.—bridge over South Canadian River at Union City, **$1,500,000.**

Dewey Co.—bridge over South Canadian River at Camargo, **$1,700,000.**

Harper Co.—bridge over Cimarron River on U. S. 283 at Buffalo, **$225,000.** G. H. Bittle, c/o owner, engr. CD 8/3/50.

▲ **Ore., McNary**—Umatilla Co., Court House, Pendleton, two 600 ft. spans, highway bridge across Columbia River. **$4,132,000.** Tudor Engineering Co., 74 N. Montgomery St., San Francisco, Calif., consult. engrs.

Ont., Chatham—City Council, Wm. A. Donovan, mayor, steel, concrete bridge, Keil Dr. over River Thames. **$800,000.** CD 11/9/43.

STREETS AND ROADS

▲ **Colo., Denver**—City and Denver Co., City and County Bldg., Denver, defeated **$1,471,000** bonds, street imprvs. CD 9/22.

▲ **Ill., Chicago**—City, City Hall, 2-level Wacker Drive from Jackson Blvd. to Adams St., **$1,000,000.** Dpt. Subways & Super Highways, 20 N. Wacker Dr., Chicago, Zone 6, consult. engr. CD 4/26/45.

Mich., Saginaw—City, C. A. Miller, mgr., bit. conc. and c. conc. 12 mi. 25 streets, **$400,000.**

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

Durham Co.—by-pass from Avondale Dr. to Oxford Hy. Approx. **$1,000,000.** George Watts Carr, 111 Corcoran St., Durham, consult. engr.

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh,

Onslow and Carteret Counties—T.B. macad. base course, surf. asph. base, surf. course Rte. 23 F.A. Rd. 113 in vicinity of Swansboro, Proj. 3696. **$500,000.** Wm. H. Rogers Jr., state hy. engr.

▲ **O., Cincinnati**—City, City Hall, voted **$3,800,000** bonds Nov. 4, street imprvs. CD 10/15.

▲ **O., Cleveland**—City, City Hall, voted bonds, Nov. 4, street paving, **$3,000,000;** street openings and widen., **$3,500,000;** expansion, construction freeway, **$6,000,000.** CD 9/8.

Pa., Pottstown—Boro, Boro Hall, defeated bonds Nov. 4, street paving and repair. **$750,000.** George F. Shaner, c/o owner, boro engr. CD 10/23.

EARTHWORK, WATERWAYS

Mich., Silver City—White Pine Copper Co., Ontonagon, sink shaft 80 ft. below low water datum, Lake Superior on east side Big Iron River; 3,500 ft. intake tunnel thru shalerock passing beneath Big Iron River

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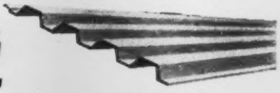

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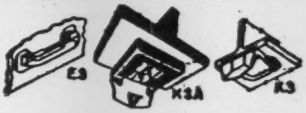

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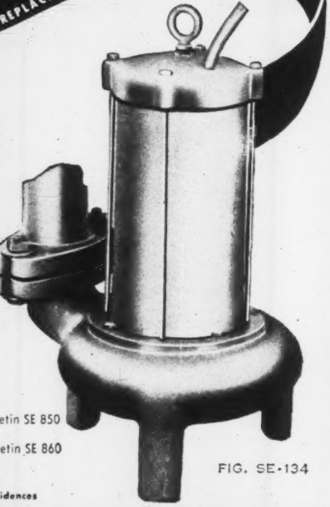

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bed and Lake Superior, incl. constr. pumping station, intake structure 27.5 ft. below low water datum 32.5 ft. above tunnel, Stone & Webster Engineering Corp., 49 Federal St., Boston, Mass., consult. engrs.

▲ **O., Cleveland**—City, City Hall, Zone 14, voted bonds Nov. 4, Lakefront imprvs. **$2,500,000.** CD 9/8.

▲ **Texas**—Lower Rio Grande Auth., Weslaco, Anzalduas Gravity Canal to run from near Mission to Lower Brownsville. **$18,000,000.** Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 4/18.

▲† **Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, seawall extens. and levee structures, Texas City, Galveston Co. **$1,750,000.**

AIRPORTS

▲ **Ala., Mobile**—WAREHOUSE, etc.—**U. S. Eng., P. O.** Box 1169, Zone 7, plans by Harry Inge Johnstone, First National Bank Bldg., Mobile, 2 aircraft warehouses at Brookley Air Force Base, **$4,000,000. J. B.** Converse & Co., First Federal Savings Bldg., consult. engrs.

▲ **Colo., Denver**—AIRPORT—City and Denver Co., City and County Bldg., defeated **$3,500,000** bonds, expansion facilities at Stapleton Airfield. CD 9/25.

▲ **O., Cleveland**—AIRPORT—City, City Hall, Zone 14, voted bonds Nov. 4, administration bldg. at Cleveland Hopkins Airport and other imprvs. there and at Lakefront Airport. **$6,000,000.** CD 9/8.

O., Portsmouth—AIRPORT—Scioto Co., Court House, voted bonds Nov. 4, airport for Scioto County. **$400,000.**

▲ **Wis., Milwaukee**—TERMINAL—Milwaukee Co., Court House, plans by J. Messmer, co. archt., 2nd unit of terminal bldg., General Mitchell Field. **$2,000,000.** CD 3/27/51.

LATIN AMERICA

Mexico, Tlalnepantla — Maiz Industrializado, S. A., Tlalnepantla, Mexico, plans flour factory. **$400,000.**

PUBLIC BUILDINGS

▲ **Ala., Gadsden**—HOSPITAL—District 4, T. B. Sanitorium Bd., Gadsden, plans by Chas. H. McCauley, Jackson Bldg., TB hospital **$1,200,000.** CD 11/11/46.

▲ **Calif., Bakersfield**—HOUSING—Housing Auth. of Kern Co., 517 Roberts Lane, plans by Robert N. Eddy, 1813 H St., 184-unit low rent housing California Ave. between Cottonwood Rd. and Owens St. **$25,000,000.** CD 5/31/51.

▲ **Calif., Centerville**—SCHOOL—Washington Union High School Dist., Box 606, Centerville, voted **$1,500,000** bonds, Washington Union High School addns.

Calif., Healdsburg—SCHOOL—Healdsburg Union High School Dist., E. B. Christensen, principal, Healdsburg, voted **$775,000** bonds Oct. 17, 1 story Senior High School. CD 9/24.

▲ **Calif., Los Angeles**—SCHOOLS—Los Angeles City School District, 1425 S. San Pedro St., plans by Austin, Field & Fry, 2311 W. 3 St., Sun Valley Junior High School addn., Sun Valley, **$750,000;** plans by Walker Kaliouzes, & Klingerman, 488 S. San Vicente Blvd., North Reseda Junior High School, Reseda, **$2,000,000;** plans by Parkinson, Powelson, Briney, Bernard & Woodford, 410 N. La Brea St., Los Angeles, South Reseda Junior High School, Reseda, **$2,000,000;** plans by J. R. Harris, 12441 Ventura Blvd., North Hollywood, 5 Ranchito Junior School buildings, Van Nuys, **$300,000;** plans by Wm. Glen Balch & Louis L. Bryan, 2933 Rowena Ave., Pacoima Junior High School, Pacoima, **$2,000,000,** plans by Douglas McLellan & Assoc., John Fortune & James Moreland, 816 W. 5 St., 5 Newcastle Ave. School buildings, Reseda, **$355,000;** plans by Paul R. Hunter, 635 S. La Brea St., 5 Bel Air North School buildings, **$355,000;** plans by J. E. Stanton & Wm. F. Stockwell, 627 W. Carondelet St., Los Angeles, Mark Twain Junior High School addns., Venice, **$600,000;** plans by John J. Laudon, 1924 Hillhurst Ave., 5 Garden Grove School buildings, Reseda, **$355,000,** plans by Lawson & Hutchinson, 2008 W. 7 St., Wilmington Junior High School addns., Wilmington, **$400,000.** A. S. Nibecker, Jr., c/o owner, engr. CD 6/13.

▲ **Calif., Stockton**—COURT HOUSE, etc. San Joaquin Co., Court House defeated **$3,500,000** bonds, court house; defeated **$500,000** bonds, jail. CD 5/13.

▲ **Calif., Taft**—SCHOOLS—Taft Elementary School Dist., Taft, defeated **$1,200,000** bonds, replacement of schools. CD 9/29.

▲ **Conn., Waterbury**—HOUSING—City Housing Auth., 24 Warner St., plans by Louis R. Fucito, 141 S. Elm St., housing, Jersey St., **$4,000,000.**

Fla., Gainesville—POWER PLANT IMPRVS.—City, City Hall, power plant imprvs. **$500,000.** Ebaugh & Goethe, 700 S.E. 3 St., Gainesville, consult. engrs. CD 8/5.

▲ **Fla., Miami**—SCHOOLS—Dade Co. Bd. P. Instruction, 275 N. W. 2 St., Leisure City School, **$350,000;** Bunche Park Negro Elementary School, **$350,000;** Bunche Park Negro Junior-Senior High School, **$600,000;** Richmond Heights Negro School, **$350,000;** Coral Wey Junior-High School, **$750,000;** West Elementary School Miami Springs, **$350,000;** Junior-Senior High School, **$750,000** and Hialeah Elementary School **$300,000** at Hialeah; High School, Opa-Locka, **$500,000;** Allapattah Junior-Senior High School, **$750,000;** Miami Park School **$300,000;** Biscayne Gardens Junior-Senior High School, **$750,000;** Biscayne Gardens Elementary School, **$300,000;** Flagaminni School, **$300,000;** Ludlum School **$300,000;**

Galloway Road School, **$300,000;** Sunny Isles School, **$350,000;** Key Biscayne School, Miami Beach, **$300,000**. CD 11/5/43.

▲ **Ga., Savannah**—HOSPITAL—Chatham Co. Hospital Auth., Court House, plans by Abreu & Robeson, 141 Walton St. N. W., Atlanta, hospital, **$5,000,000.** CD 6/20.

Ga., Statesboro—HOSPITAL—Bulloch Co., Court House, plans by Wm. J. J. Chase & Assocs., Candler Bldg., Atlanta, hospital addn. **$600,000.** CD 10/14.

▲ **Ga., Tennille**—SCHOOLS—Washington Co. Bd. Educ., Tennille, plans by Stevens & Wilkinson, 57 Luckie St. N.W., Atlanta, White High School, **$500,000;** Negro High School, **$500,000.** Negro Elementary School, **$350,000.**

Ill., Chicago—SCHOOL—Bd. Educ., 228 N. La Salle St., Zone 1, 2 story, bsmnt., brick, steel elementary school, S. Springfield St. between 81 Pl. and 82 St., **$750,000.** CD 3/15/51.

▲ **Ill., Harrisburg**—HOUSING—Housing Auth. of Saline Co., J. L. Steinmarch, exec. dir., P.O. Box 219, 94-unit housing to consist of 19 buildings on 6 acres site on south side of city. **$1,000,000.**

▲ **Ill., Joliet**—SCHOOL—School District 210, 510 Barber Bldg., plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, high school, gymnasium and auditorium, **$1,250,000.** CD 9/28/51.

Ia., Burlington — SCHOOLS — Bd. Educ., Burlington voted **$910,000** bonds, schools.

Mass., Southwick—SCHOOL—**Town, Bd. Selectmen, Depot** St., plans by Ralph M. Sizer, 10 Elm St., Westfield, Junior High School. **$500,000.**

▲ **Mich., Ann Arbor**—HOSPITAL—University of Michigan, Harlan Hatcher, pres., Ann Arbor, rehabilitation university hospital. **$1,750,000.**

▲ **Mich., Ann Arbor**—LIBRARY, etc.—University of Michigan, Harlan Hatcher, pres., Ann Arbor, 3 brick, steel, stone library bldgs. on campus, **$3,250,000;** first unit medical science, **$1,800,000;** brick, steel, stone music bldg., **$1,200,000;** brick, steel fire station and training center, **$320,000.**

▲ **Mich., Detroit**—HOSPITAL—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, plans by Eberle M. Smith Assoc., Inc., 153 E. Elizabeth St., brick, steel, concrete Psychiatric Institute Hospital, **$2,000,000.** CD 1/16/51.

▲ **Mont., Helena**—SCHOOL—School Dist. 1, Helena, voted **$1,720,000** bonds Nov. 4, high school. CD 5/17/46.

Neb., Alliance—HIGH SCHOOL—Bd. Educ., Alliance, voted **$752,000** bonds, Junior High School and repairing 3 grade schools. Davis & Wilson, 225 Stuart Bldg., Lincoln, archts. CD 10/29.

N. Y., Gilboa—SCHOOL, etc.—Gilboa-Conesville Cent. School Dist., Gilboa, elementary school, garage and **altering present bldg. $700,000.**

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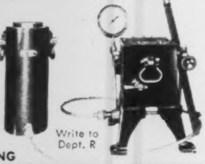

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MUrray Hill 3-7699

▲ **N. C., Durham**—SCHOOLS—Durham Co. and City Bd. Educ., Durham, approved $4,000,000 bond issue Nov. 4, for schools, incl. 2 Consolidated High Schools, **$614,100** and **$564,000**; music-auditorium bldg., at Central High School, **$687,500**; Junior High School, **$511,500**. CD 9/30.

▲ **O., Cleveland**—SCHOOL—City, City Hall, Zone 14, voted bonds Nov. 4, imprv. Hudson Boys Farm and Blossom Hill Girls School. **$1,000,000.** CD 9/8.

▲ **O., Cleveland**—HOSPITAL—etc.—City, City Hall, Zone 14, voted bonds Nov. 4, City Hospital and Health Center. **$3,000,000.** CD 9/8.

▲ **O., Cleveland**—ADMINISTRATION—Cuyahoga Co., Court House, defeated bonds Nov. 4, county administration bldg. **$4,800,000.** CD 8/26.

▲ **O., Cleveland**—HOSPITAL—Cuyahoga Co., Court House, voted bonds Nov. 4, hospital for chronically ill. **$2,700,000.** CD 10/27, under O., Warrensville.

O., Columbus—SCHOOL—Upper Arlington School Bd., 2100 N. Devon Rd., Zone 12, voted bonds Nov. 4, Tremont Road Elementary School. **$550,000.** CD 10/15.

O., Urbana—COURT HOUSE—Champaign Co., Court House, voted bonds Nov. 4, court house. **$650,000.** CD 6/13.

▲ **O., Zanesville**—HIGH SCHOOL—Bd. Educ., Zanesville, voted **$2,100,000** bonds Nov. 4, high school. CD 5/22.

Okla., Miami—AUDITORIUM—City, City Hall, plans by D. A. Stevens, Stilwater, municipal auditorium. **$750,000.**

▲ **Pa., Darlington**—HIGH SCHOOL—Joint School Dist. of Darlington, New Galilee and Enon Valley, Darlington; plans by B. J. McCandless, 239 Fourth Ave., Ellwood City, 2 story, bsmnt., steel, brick, tile Consolidated High School. **$1,200,000.** CD 11/13/46.

Pa., Green Ridge—SCHOOL—Aston Township School Dist., Green Ridge, plans by Joseph A. Wigmore, 117 S. 17 St., Phila., elementary school. **$500,000.**

▲ **Pa., Phila.**—HOUSING—Phila. Housing Auth., 42 S. 15 St., plans by Edmond G. Krimmel, John Lane Evans, James Hatfield, Lloyd Malkus Assoc., 1701 Walnut St., East Poplar Low Rent Housing Proj. **$2,000,000** CD 9/12/49.

Pa., Morrisville—HIGH SCHOOL—Pennsbury Joint School Bd. Makefield Rd., plans by Albert E. Micklewright, 72 Ewing St., Trenton, N. J., Pennsbury High School addn. **$500,000.**

▲ **Tenn., Chattanooga**—SCHOOLS—Hamilton Co. Bd. Educ., Court House, Central High School, **$1,676,000**; East Ridge Junior High School, **$412,500**; Ooltewah Elementary School, **$440,000**; Chickamauga Negro School, **$400,000**; Hixson School, **$675,000**; Elbert S. Long High School, **$550,000**; Sale Creek School, **$522,000**; Tyner School, **$403,000.**

▲ **Tex., Dallas**—COURT HOUSE, etc.—Dallas Co., Court House, voted **$2,000,000** bonds Nov. 4, county court house and jail. CD 10/22.

▲ **Tex., Lubbock** — SCHOOLS — Lubbock Independent School Dist., Lubbock, plans by Haynes & Kirby, 109 Texan Ave. No. 1, elementary school, **$350,000**; No. 2, elementary school, **$400,000**; No. 3, elementary school, **$300,000**; plans by Atcheson & Atkinson, Sanford Bldg., Senior High School, **$1,250,000**; grade school, **$300,000**; school addn., shop, heating sys. **$400,000.** CD 9/24.

▲ **Va., Norfolk**—SCHOOLS—Norfolk Co. School Bd., 148 Granby St., plans by Bernard B. Spigel, Dickson Bldg., elementary school in Western Branch Dist. near Portsmout, **$550,000**; elementary school, Engleside (near Norfolk) **$500,000.** CD 6/26.

Va., Prince George—HIGH SCHOOL—Prince William County School Bd., Prince George, plans by Dixon & Norman, 1103 E. Main St., Richmond, 2 story, brick, concrete masonry consolidated high and elementary school, Disputanta. **$500,000.** CD 10/16.

Wash., Seattle—SCHOOL—Highline School District 401, 253 S. 152 St., plans by Waldron & Dietz, Hoge Bldg., Zone 4, Sylvester Junior High School, 6 Ave. S.W. and Sylvester Rd. **$936,000.** CD 7/22.

COMMERCIAL BUILDINGS

▲ **Calif., San Francisco**—OFFICE—Equitable Life Assurance Society of U. S., 315 Montgomery St., plans by W. D. Peugh, 333 Montgomery St., 26 story office bldg., Sutter and Montgomery Sts. **$10,500,000.** CD 10/29.

▲ **Calif., San Francisco**—CLUB—Olympic Club, 524 Post St., plans by Milton Pflueger, 580 Market St., remodeling club, **$1,500,000.**

Ga., Atlanta—DORMITORY—Emory University, N. Decatur Rd., plans by Ivey & Crook, Candler Bldg., 6 story Harris Hall Dormitory addn., **$650,000.** CD 10/1.

Ga., Savannah—RECREATION CENTER—Savannah Jewish Educational Alliance, Barnard St., recreation center, **$600,000.**

Ky., Louisville—CHURCH—Hersey Davis Memorial Baptist Church, c/o Joseph H. Kolbrook, archt., Starks Bldg., church, **$500,000.**

▲ **La., New Orleans**—DORMITORIES—Tulane University 6823 St. Charles Ave., plans by Freret & Wolf, 630 Gravier St., 4 men's dormitories, **$1,755,000.** CD 1/23/52.

▲ **Md., Baltimore** — OFFICE — Chesapeake & Potomac Telephone Co., 320 St. Paul St., plans by Taylor & Fisher, 1012 N. Calvert St., 2 and 3 story, brick, rein.con., L-shaped York Rd. Central Office, 5711 York Rd. **$1,000,000.** E. R. Greenleaf, c/o owner, ch. engr.

Mass., Pittsfield—SHOPPING CENTER—Joseph A. Powers, 156 Benedict Rd., plans by Ernest F. Carlson, Inc., 1694 Main St., Springfield, shopping center, **$900,000.**

Mich., Charlotte — HOSPITAL — Hayes-Green-Beach Hospital, Helen Mahaffey, supt., Charlotte, plans by Louis C. Kingscott & Assoc., Inc., 511 Monroe St., Kalamazoo, 3 story, brick hospital addn. **$600,000.** CD 7/14.

▲ **Minn., Minneapolis** — OFFICE — Prudential Insurance Co. of America, Rand Tower, plans by Magney, Tusler & Setter, 202 Foshay Tower, regional office, 8 story central tower with 3 story wings, near France Ave. and Wayzata Blvd. **$6,000,000.**

Neb., Omaha—TEMPLE—Temple Israel, Park Ave. and Jackson St., plans by Braverman & Halperin, Euclid-71st Bldg., Cleveland, O., Temple, 69 and Cass Sts. **$500,000.** CD 12/31/45.

▲ **N. Y., Menands**—OFFICE—New York Telephone Co., 158 State St., Albany, plans by Marcus T. Reynolds, 314 Washington St., 3 story, steel, concrete office. **$1,000,000.** Thompson Constr. Co., 11 N. Pearl St., awarded contract for excavation and fdn. only.

▲ **N. C., Raleigh**—HOUSING—J. W. York & E. N. Richards, 705 Georgetown Rd., Raleigh, and R. A. Bryan, Goldsboro, housing, stores on 80 acres, Old Holdnig Farm near Meredith College, **$2,000,000.** CD 3/9/49.

▲ **O., Belmont** — TELEPHONE HEADQUARTERS — Ohio Bell Telephone Co., 750 Huron St., Cleveland, telephone headquarters and plant. **$1,000,000.**

▲ **O., Cleveland**—HOSPITAL—Bd. Trustees Fairview Park Hospital, 3305 Franklin Blvd., plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., 5 story, 200-bed brick, stone hospital, Lorain Ave. at Rocky River Valley. **$4,750,000.** CD 1/13/50.

Pa., Lansdale—HOSPITAL—Elm Terrace Hospital, Lansdale, hospital modernization, **$600,000.**

Pa., Pittsburgh—SHOPPING CENTER—McKnight Shopping Center, Inc., McKnight Rd., plans by Clifford Lake, Fox Chapel, Aspinwall, brick, block, steel shopping center, Ross Twp. **$600,000.**

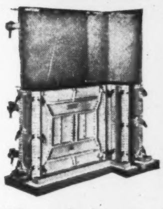
S. D., South Sioux Falls—CHURCH—Church of the Bible, 123 W. 12 St., plans by Perkins & McWayne, 320 Paulton Bldg., Sioux Falls, church, school, dormitories. **$600,000.**

▲ **Tex., Dallas** — TEMPLE — Temple Emanu-El, 1900 South Blvd., plans by Erica Mendelsohn, c/o owners, new temple, **$650,000;** activities bldg., **$350,000.** Northwest Hy. and Hillcrest. CD 6/6/50.

▲ **Tex., Dallas**—BANK—Texas Bank & Trust Bldg., Texas Bank & Trust Bldg., plans by Bank Building & Equipment Corp. of America, 906 Sidney St., St. Louis, Mo., 6 story, bsmnt. bank, **$1,000,000.** CD 10/29.

▲ **Tex., Fort Worth**—DWELLINGS—Fort Worth Housing Auth., C. H. Nirike, chn., 500 W. Belknap St., 500 dwelling units. **$3,750,000.**

Tex., Galveston—HOTEL—Jack Tar Court Hotel, North Beach, plans by Thomas M. Price, 819 Broadway, brick, wood frame hotel expansion, some remodeling existing hotel, swimming pool. **$850,000.** R. L. Reid, 2506 Richton St., Houston, consult. engr. CD 9/30.



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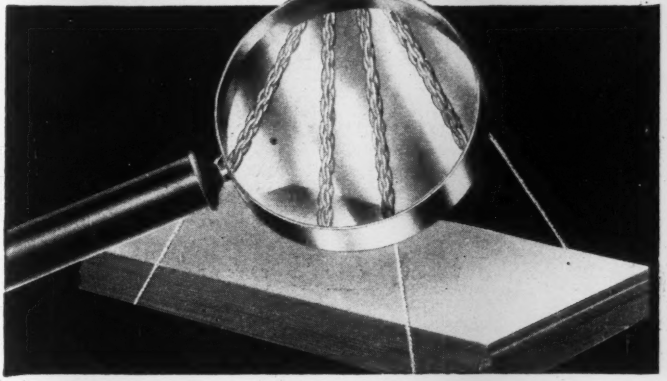

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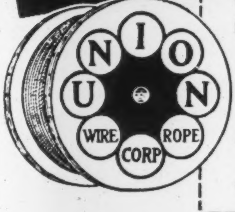

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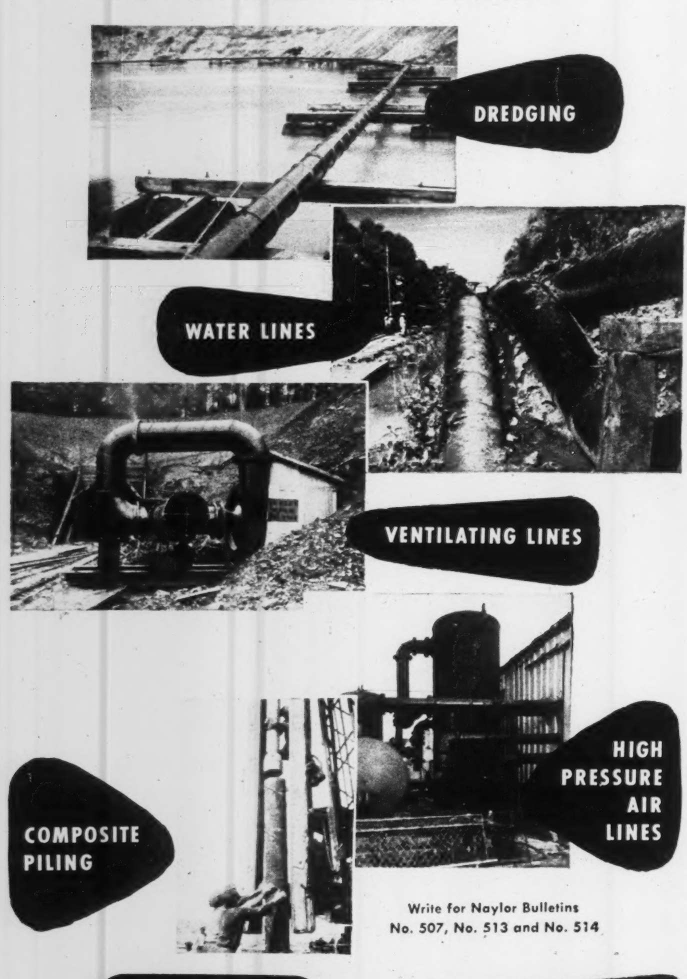

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▲ **Tex., Houston**—OFFICE—Old National Insurance Co., 2505 Travis St., plans by Duryea & Elkins, 910½ Westheimer St., 5 story (ultimately 10 story) bsmnt. office, **$500,000;** Second Phase 10 story office addn., **$1,250,000**, Fannin and Ewing Sts.

▲ **Tex., Houston**—DWELLINGS—Tilson Built Homes, 5516 Yale St., 12 brick dwellings, concrete pier and beam fdn., **$318,000;** 15 brick, stone exterior dwellings, concrete pier and beam fdn., **$375,000;** 18 masonry dwellings, concrete slab fdn. **$345,000**, in area Glenora Estates.

▲ **Wis., Madison** — SHOPPING CENTER, etc. — A. J. Fiore, 620 W. Miflin St., 10 story, shopping center and apartment, **$2,000,000.**

▲ **Wis., Madison**—OFFICE—F. Voight c/o New World Life Insurance Co., 2 Craig Ave., plans by John Normile, 2425 Park Ave., Des Moines, Ia., office and store, **$1,000,000.**

Wis., Shorewood—STORES—A. M. Kailing, 4030 N. Downer Ave., Milwaukee, Zone 11, 3 stores and parking area. **$500,000.**

▲ **Alaska, Anchorage**—HOMES—Knik Homes, Inc., Anchorage, 100 homes. **$1,000,000.**

▲**Alta., Edmonton**—SHOPPING CENTRE—Owner, c/o L. G. Pugsley, Bradburn Thomason Bldg., shopping centre, between 111 and 114 Aves. and 133 and 135 Sts., (Westmount District). **$3,000,000.**

▲ **Man., West Kildonan**—HOMES—Model Homes Ltd. S. W. Smithfield and McGregor, Winnipeg, 1,500 homes, one and 2 story, Kildonan Ave., McPhillips St., C. PR tracks, north Winnipeg city limit, 200 homes yearly for next 7 years, **$18,000,000.**

▲ **Ont., Toronto**—APARTMENTS—International Realty Co., 190 Yonge St., plans by P. Caspari, 496 Church St., apartments Yonge, Alexander, Church and Wood Sts. **$8,000,000.** CD 10/30.

▲ **Que., Montreal**—CONCERT HALL, etc.—Seminary St. Hyacinthe, St. Hyacinthe, plans by V. Lalibertie, 5504 St. Denis St., concert hall, Sherbrooke St. E. **$1,000,000.**

INDUSTRIAL BUILDINGS

▲ **Ala., Gorgas**—GENERATING UNIT—Alabama Power Co., 600 N. 18 St., Birmingham, addn. power generating unit, **$25,000,000.**

▲ **Ill., Chicago**—FACTORY—Van Cleef Bros., Inc., Div. of Johns-Manville Co., 7800 S. Woodlawn Ave., factory expansion, **$1,500,000.**

▲ **La., Houma**—PLANT—Cities Service Oil Co., 1800 Airline Hy., New Orleans, plant; natural gas lines, facilities, near here, Terrebonne Parish, **$2,840,000.**

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▲ **La., New Iberia**—PLANT—Richardson Co., Lockland, O., plastic plant, **$1,000,000,** Robert S. Paulson, c/o owner, ch. engr.

▲ **Mich., East Lansing**—STORAGE-OFFICES—John Deere Plow Co., 735 E. Michigan Ave., Lansing, 1 story, brick, concrete 150,000 sq. ft. storage-offices, Lake Lansing and Harrison Rds. **$1,100,000.**

▲ **Mo., Kansas City**—STATION—Kansas City Power & Light Co., c/o J. A. Keeth, mgr., 1330 Baltimore St., Kansas City 10, Mo., plans by Ebasco Services, Inc., 2 Rector St., New York, N. Y., Unit 4 Hawthorne Station, **$15,000,000.**

▲ **O., Portsmouth—**PAPER **MILL—**Emigh Ohio Valley Newsprint Co., (O. R. Emigh, 322 Poplar St., Wyoming, Cincinnati, O) newsprint paper mill on 43 acre site. **$30,000,000.**

▲ **Pa., Brackenridge** — MILL — Allegheny Ludlum Steel Corp., Brackenridge, 1 story, steel frame, cold strip mill. **$9,000,000.**

▲ **Tex., Freer**—PLANT—H. W. Bass & Sons, Inc., Alice, small gas plant, natural gas lines, near here **$1,236,550.**

▲ **Tex., Halletsville**—REFINERY—Goliad Corp., Halletsville, refinery for production natural gasoline, **$1,785,000;** refinery for production oil products other than gasoline, **$803,610.**

▲ **Tex., Longview**—PLANT—Grove Controls, Inc., Longview, plant to mfg. specialty valves. **$5,455,952.**

▲ **Tex., Upton**—PLANT—Texas Gas Products Corp., Upton, gas products plant. **$1,485,000.**

▲ **N. B., Fredericton**—MILL—Acadia Pulp & Paper Corp., c/o Ralph V. Limerick, Q. C. Lawyer, Fredericton pulp and paper mill, **$1,000,000.**

UNCLASSIFIED

Calif., Long Beach—TRANSIT SHED—Long Beach Harbor Dept., 1333 El Embarkadero St., steel, concrete transit shed for west half of Pier No. 2, **$550,000.** CD 12/6/44.

▲ **Fla., Miami**—TRAFFIC LIGHT and FIVE ALARM SYSTEM—City, City Hall, traffic light and fire alarm system, **$2,000,000.**

▲ **Georgia**—NATURAL GAS LINE—Chattahoochee Natural Gas Co., c/o J. W. Goodwin Eng. Co., engr., 2111 7 Ave. S., Birmingham, Ala., 70.2 mi. natural gas line from Rome to Dalton. **Approx. $3,000,000.**

Georgia—RURAL DISTRIBUTION LINES—Jackson Electric Membership Corp., Jefferson, 107 mi. rural distr. line and system imprvs., Jackson Co. **$515,000.**

Indiana—RURAL DISTRIBUTION LINES—Knox County Rural Electric Membership Corp., Vincennes, 50 mi. rural distr. lines and system imprvs. **$530,000.** CD 5/27/48.

La., Gretna—NATURAL GAS SYSTEM—Jefferson Parish Police Jury, natural gas sys. in 6th Ward. **$400,000, Porter, Barry & Assoc., 1730 Main St., Baton** Rouge, consult. engrs.

Montana—RURAL DISTRIBUTION LINES—Big Horn County Electric Co-operative, Lodge Grass, 40 mi. rural distr. lines, 10 mi. 66 kv transmission line, sys. imprvs., Big Horn Co. **$380,000.**

▲ **Montana-Idaho-Washington**—OIL PRODUCTS LINE—Continental Pipe Line Co., subsidiary of Continental Oil Co., c/o W. L. Kygar, pres., Ponca City, Okla., 600 mi. 8 in. oil products line Billings, Mont. to Spokane, Wash., **$18,000,000;** oil and pipe line terminal, Billings, Mont., **$400,000;** oil products and pipe line terminal, Spokane, Wash., **$325,000;** oil products and pipe line terminal, Boise, Idaho, **$375,000.**

New Mexico—RURAL DISTRIBUTION LINES—Mora-San Miguel Electric Co-operative, Mora, 156 mi. rural distr. lines and sys. imprvs., Mora Co. **$320,000.**

North Carolina—RURAL DISTRIBUTION LINES—Carteret-Craven Electric Membership Corp., Morehead City, line extens., sys. imprvs., office, Carteret Co. **$635,000.**

O., Cincinnati—PARKS, etc.—City, City Hall, voted **$825,000** bonds Nov. 4, parks and playgrounds.

▲ **O., Cleveland**—PARK IMPRVS., etc.—City, City Hall, Zone 14, voted bonds Nov. 4, park imprvs. **$1,500,000;** bldgs. at Brookside Zoo, **$1,000,000.** CD 9/8.

▲ **O., Cleveland**—PARKING—City, City Hall, Zone 14, voted bonds Nov. 4, off-street parking. **$2,000,000.** CD 9/8.

▲ **O., Cleveland**—RECREATION FACILITIES—City City Hall, Zone 14, voted bonds Nov. 4, playgrounds and recreation facilities. **$3,000,000.** CD 9/8.

O., Mansfield—FAIRGROUND BLDGS.—Richland Co., Mansfield, defeated bonds Nov. 4, fairgrounds bldgs. and imprvs. **$600,000.** CD 9/10.

Oklahoma—OIL LINE—Continental Pipe Line Co. (subsidiary Continental Oil Co.) Sterling Bldg., Houston, Tex. 18 mi. 12 in. crude oil line sect. between Oklahoma City and Ponca City. **$525,000.**

Texas—POLE TELEPHONE LINES—Etex Telephone Co-operative, **D. B. Clonts, mgr.,** Gilmer, 500 mi. rural pole telephone lines, Gregg, Smith, Wood and Marion Counties. **$665,000. CD 4/16.**

▲ **Texas**—GAS **MAINS—Texas** Gas Products Corp., Upton various gas mains and field lines, some gas production facilities, Upton, Glasscock, Midland and Reagan Counties. **$1,398,500.**

▲ **Tex., Houston**—PARKS—Harris Co., c/o Comrs. Court, Court House, voted bonds Nov. 4, municipal parks. **$1,500,000.** L. Fugate, city engr. CD 10/6.

▲ **Washington**—RURAL DISTRIBUTION LINES—Big Bend Electric Co-operative, Ritzville, 352 mi. rural distr. line, headquarters facilities and system imprvs., Adams Co. **$1,260,000.** CD 1/9/50.

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UNIT PRICES

Mountain highway, New Hampshire

Precipitous terrain forms the site of the Jackson-Pinkham Grant project to reconstruct 1.215 miles of road mix highway and construct a 23 ft. reinforced concrete slab bridge on the White Mountain Highway, between Jackson and Gorham, New Hampshire. A 24 ft. wide, 3 in. deep roadway plus a 12 ft. wide truck lane are specified in the $305,341 contract awarded by the New Hampshire Department of Public Works and Highways to the Lambert Construction Co., the lowest of five bidders. An extremely heavy ledge job, the ledge being estimated at about 60% of the total excavation, is expected on the project which is to begin on November 12 and be finished by November 1, 1953. T. A. Nowak is the engineer.

Hourly wage rates to be paid are: skilled labor, $1.60 to $3.00; semi-skilled labor, $1.25 to $2.62; and common labor, $1.15 to $1.20.

Bidders include:

1C Lambert Const. Co., Inc., White River Junction, Vermont	$305,341
2 Charter Oak Const. Co., Inc., Hartford, Connecticut	315,737
5 Thomas W. Watkins & Sons, Inc., Amesbury, Mass	530,374

Bids: 10-16-52			Unit Prices	
Items	Units	Quantity	1 C	2
Clearing & grubbing	ac	10	$500.00	$550.00
Remove aband road surf	sy	2,500	0.20	0.15
Earth exc, incl earth borrow	cy	31,000	1.70	0.60
Ledge excavation	cy	44,000	1.70	2.50
Earth trench exc	cy	2,100	2.00	2.00
Ledge trench exc	cy	300	5.00	10.00
Uncl channel exc	cy	4,100	2.00	1.50
Uncl structure exc	cy	850	5.50	7.00
Gravel overhaul	cym	112,000	0.10	0.10
Fine grading	sy	79,000	0.10	0.08
Gravel	cy	28,000	0.85	1.15
Cl A bit surf trmnt	gal	37,000	0.25	0.25
Cl C-2 rd mix pavement (crushed gravel)	t	4,500	4.50	4.00
Asph cutback for C-2 pavement	gal	54,000	0.20	0.19
Type I-1 hot asph conc wearing course	t	12.5	14.00	20.00
Tem bri for 1-way traf	ls	1	1,200	3,000
Remove superstructure				
Sta 54 + 50	ls	1	1,200	4,000
Sta 56 + 50	ls	1	1,000	1,000
Cl A conc, air-entrained	cy	445	55.00	55.00
Cl C conc, air-entrained	cy	61	50.00	50.00
Rein steel	lb	47,000	0.13	0.14
Mortar rubble masonry	cy	120	40.00	35.00
15" SSRC pipe	lf	300	3.00	3.95
18"	lf	200	3.75	4.60
24"	lf	440	5.50	7.00
60"	lf	156	28.00	27.00
60" ESRG pipe	lf	68	36.00	30.00
Bridge railing D	lf	120	14.00	5.00
Membrane waterproofing	sy	114	3.00	3.00
Paint waterproofing	sy	300	1.50	1.00
Stone fill	cy	120	2.00	5.00
6" BCPCM pipe und	lf	900	2.00	2.50
12" conc sewer pipe und	lf	360	3.00	3.50
Cobble gutter (cement grouted)	sy	200	3.00	4.00
Cable guard rail, std no GR-1A	lf	1,000	1.75	1.45
Multi-cable guard rail std no Gr-2A	lf	1,700	2.00	2.00
Wood GR (single rail) std no GR-3A	lf	100	4.00	3.50
Anchorages	ea	16	40.00	40.00
Post markers	ea	50	8.00	8.00
Catch basins type C	ea	3	175.00	180.00
Drop inlets type C	ea	4	200.00	160.00
Curb board	lf	1,600	0.40	0.40
Project markers	ea	2	25.00	35.00
Mainten of traffic	lf	6,417	0.20	0.15
Loam 4" deep	sy	100	0.50	0.80
Sod	sy	100	3.00	2.50
Uniformed officers	hr	300	2.00	1.75
Mulch	sy	8,000	0.08	0.08

Concrete pillow caissons

Ten watertight boxes of reinforced concrete, half the size of a city block, plus five other piers will be used to overcome the problem of too much solid rock at the site of the Thruway Bridge across the Hudson River between South Nyack and Tarrytown. The $11,772,520 contract let to the Merritt-Chapman & Scott Corp. by the New York State Thruway Authority includes dredging, foundation work, caissons, piles, and other miscellaneous work. The huge caissons are to be floated into position and then sunk into place by filling them with water. As the construction of the superstructure progresses, water will be pumped from the boxes to effect the desired buoyancy. Two of the boxes will be 184 ft. long, 100 ft. wide and 40 ft. high and will weigh approximately 18,400 tons. Two will be 120 ft. long 60 ft. wide and 40 ft. high. The other six will be the same height, but slightly smaller. Madigan-Hyland were the consulting engineers.

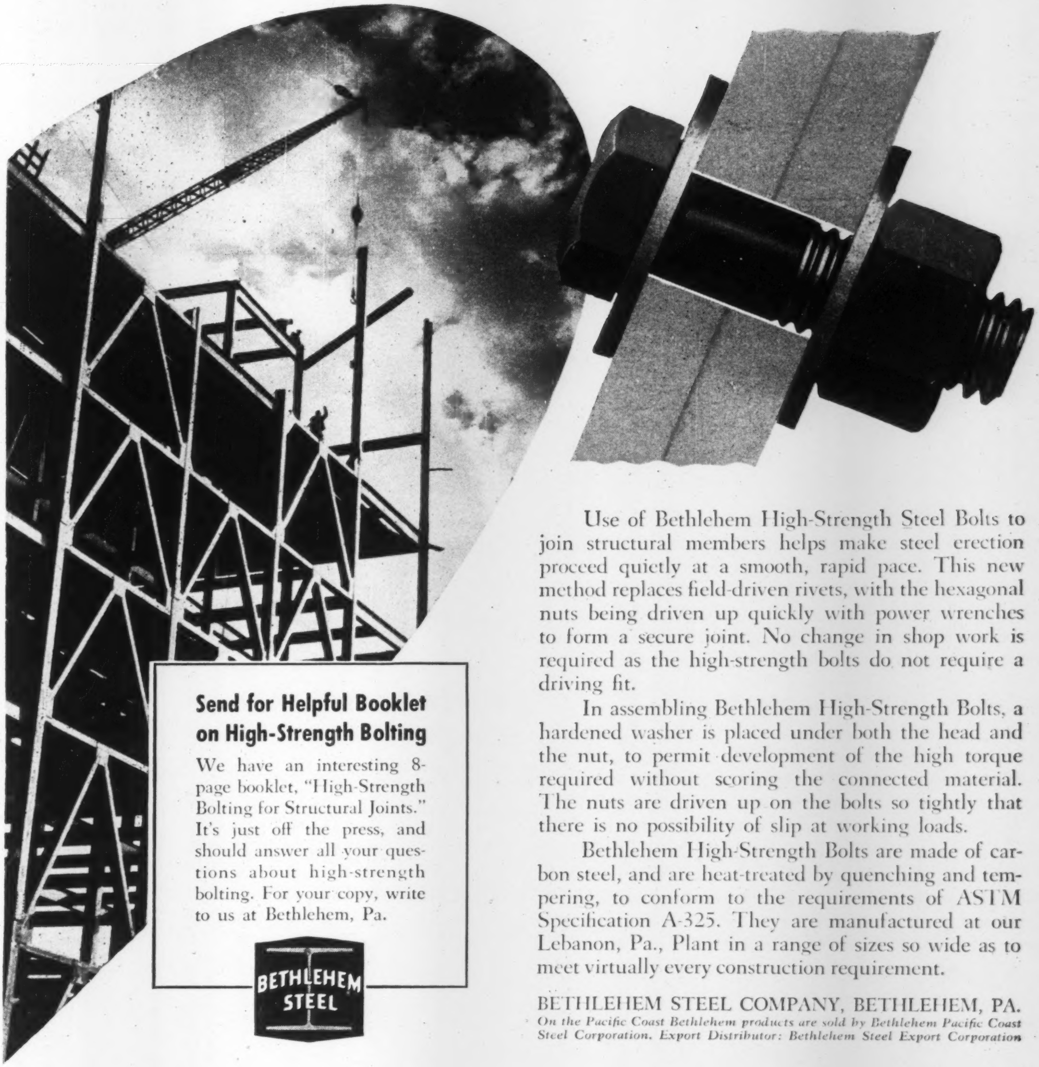
Wage rates are: bricklayer, $3.30 per hr; carpenter, $3.05 per hr; structural ironworkers, $3.40 per hr; and laborers, $2.10 per hr.

Bidders include:

1C Merritt-Chapman & Scott Corp., N. Y., N. Y	$11,772,520
2 Frederick Snare Corp., N. Y., N. Y	12,745,205

Bids: 8-27-52			Unit Prices	
Items	Unit	Quantity	1 C	2
Natural cmt, type N	bbl	2,000	$5.00	$3.70
Cl 1 conc	cy	9,000	21.00	20.00
Bar reinf for struc deformed	lb	11,500,000	0.16	0.21
Bar reinf for struc plain	lb	950,000	0.16	0.21
Structural steel	lb	402,000	0.33	0.45
Misc metals	lb	34,000	0.75	1.00
Maint & prot of traffic	ls	1	14,000	[illegible]
Cofferdams	ea	10	37,000	[illegible]
Untreated timber piles	lf	22,000	2.50	[illegible]
Stl bearing piles for				
Caissons 14HBP-117LB	lf	54,500	11.00	15.00
Cofferdams 14HBP-117LB	lf	94,500	11.00	15.00
Icebreakers & fenders 14HBP-89LB	lf	56,500	10.00	12.00
Icebreakers & fenders 12HBP-74LB	lf	6,300	9.00	10.50
Timber & lumber	mfbm	265	750.00	750.00
Concrete admixture	lb	147,000	0.30	0.30
Air entraining agent	gal	1,260	1.00	3.00
Sand blanket	cy	10,000	6.00	10.00
Gravel blanket	cy	10,500	8.00	10.00
Unclassified excavation	cy	4,500	3.00	5.00
Dredging of trench	ls	1	245,000	200,000
Dredging under caissons	cy	63,500	1.50	1.75
Placing caissons	ls	1	185,000	177,000
Hydrostatic tests	lf	1,500	14.00	15.00
Corr met pipe sleeves				
25" OD	lf	10,900	7.00	11.00
36" OD	lf	5,200	9.00	15.00
30" dia cylinder pile-bents 174, 177	lf	7,900	30.00	46.00
175, 176	lf	22,300	35.00	61.00
Drilling of core	lf	900	40.00	40.00
Pressure grouting of rock	lf	900	50.00	30.00
Portland cmt, type 2	bbl	84,000	4.20	4.00
Conc for structures	cy	46,500	88.00	61.00
Stl sheeting built up piles	sf	41,000	3.00	4.00
Automatic tide recorders	ea	3	2,000	1,500

HOW BOLTED STRUCTURAL JOINTS SPEED UP STEEL CONSTRUCTION



Use of Bethlehem High-Strength Steel Bolts to join structural members helps make steel erection proceed quietly at a smooth, rapid pace. This new method replaces field-driven rivets, with the hexagonal nuts being driven up quickly with power wrenches to form a secure joint. No change in shop work is required as the high-strength bolts do not require a driving fit.

In assembling Bethlehem High-Strength Bolts, a hardened washer is placed under both the head and the nut, to permit development of the high torque required without scoring the connected material. The nuts are driven up on the bolts so tightly that there is no possibility of slip at working loads.

Bethlehem High-Strength Bolts are made of carbon steel, and are heat-treated by quenching and tempering, to conform to the requirements of ASTM Specification A-325. They are manufactured at our Lebanon, Pa., Plant in a range of sizes so wide as to meet virtually every construction requirement.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

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We have an interesting 8-page booklet, "High-Strength Bolting for Structural Joints." It's just off the press, and should answer all your questions about high-strength bolting. For your copy, write to us at Bethlehem, Pa.

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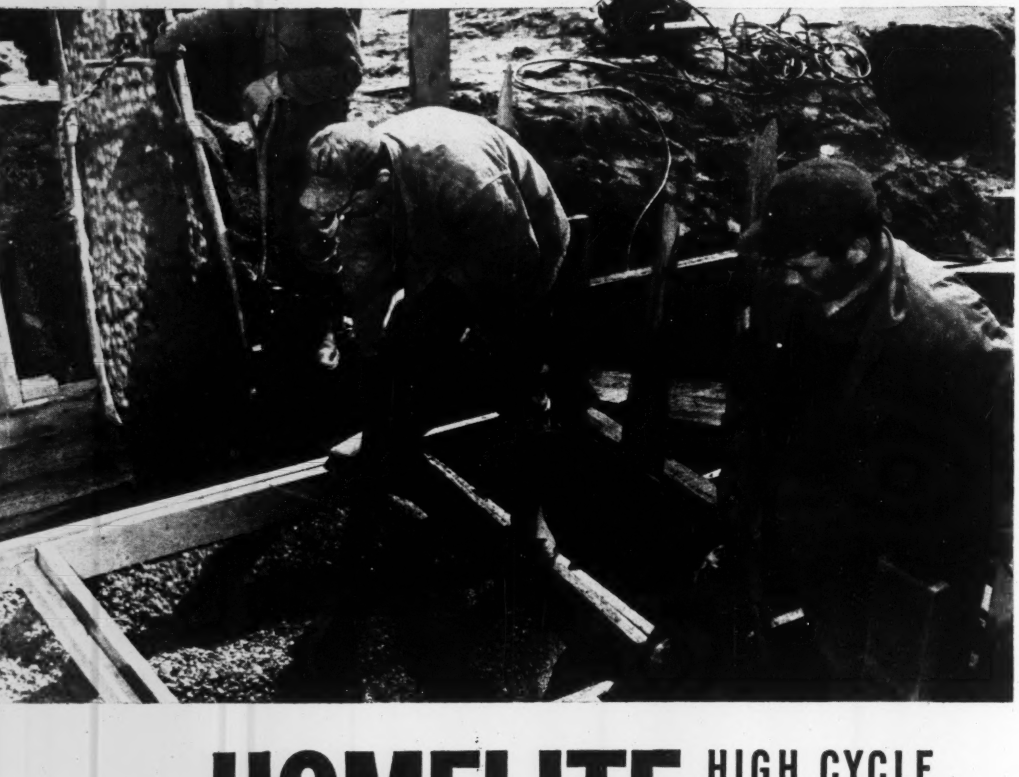

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Gilbane Building Co.**, 90 Calverly St., Providence, R. I. CA Est. **$1,000,000.** construct, manage and finance 100 HOUSING units for Dpt. Air Force, CHICOPEE FALLS, MASS. Westover Development Corp., (Sponsor), 97 A Exchange St., Portland, Me. Paul E. Atwood, 107 Court St., Bangor, Me., archt. CD 10/27/49.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

December 2 Maryland December 4 New York

STREETS AND ROADS

December 2 Maryland, New Jersey

▲† **N. J., Wrightstown**—DORMITORIES—B.A. 12/23—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., 22 airmen's dormitories or 21 or 22 SAC barracks and 6 mess, administration bldgs., driveways, parking area, sidewalks, McGuire Air Force Base, ENG 36-109-53-159. Extended date. Fridy, Gouker Truscott & Fridy, 1321 Arch St., Phila., Pa., archts. CD 11/10.

▲† **N. Y., Niagara Falls**—ARFTC FACILITIES—B.A. 2/19—U. S. Eng., 80 Lafayette St., New York, Zone 13, ARFTC facilities, Niagara Falls Air Force Base. $1,000,000-$3,000,000. Crenshaw, Beardsley & King, 2112 Erie Blvd., East Syracuse, archts. CD 10/16.

BIDS ASKED—BUILDINGS

▲ **N. J., Princeton**—SHOPPING CENTER—B.A. 11/24—Ketcham, Gina & Sharp, archts., 227 E. 44 St., New York, N. Y. (selected list bidders) shopping center, restaurant, professional bldg. and parking area, for Clearview Assocs., 145 Harrison St., Princeton, N. J., $3,600,000. Extended date. Severud, Elstad, Krueger, 415 Lexington Ave., New York, N. Y., engrs. CD 7/15.

▲ **Pa., Washington**—HOUSING—B.A. 11/26—Washington County Housing Auth., Washington, Valley View Terrace Housing, 132 families, row-type, Valley Rd, Canonsburg. $1,500,000. J. Kenneth Myers, 524 Fourth Ave., Pittsburgh, archt. CD 4/21.

▲† **Pa., Letterkenny**—WAREHOUSE, etc.—B.A. 11/28—U. S. Eng., 34 St. and Maryland Ave., Baltimore, Md., 200x200 ft. concrete, concrete block, structural steel, warehouse, flammable materials and heating plant and utilities, $500,000. Plans deposit $10. Modjeski & Masters, State St., Harrisburg, Pa., archts.; 200x1,200 ft. concrete, concrete block, structural steel, precast concrete warehouse, general purpose, heating plant, outside utilities, $1,500,000. Plans deposit $25, at the Letterkenny Ordnance Depot. CD 11/28/51.

▲ **N. Y., Flushing**—HIGH SCHOOL—B.A. 12/5—Bd. Educ., Bureau Const., 49 Flatbush Ave. Exten., Brooklyn, Zone 1, Junior High School 216, 64 Ave. between 174 and 175 Sts. $2,164,000. Plans deposit $30.

▲ **N. Y., Brooklyn**—HIGH SCHOOL—B.A. 12/9—Bd. Educ., Bureau Constr., 49 Flatbush Ave. Exten., Zone 1, Mid-Brooklyn High School Rutland Rd., Kingston Ave. and Winthrop St. $3,955,156. Plans deposit $34. CD 8/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

L. R. Strandberg & Son, Inc., 608 S. Dearborn St., Chicago, Ill., CA. **$1,284,693**, est. $1,370,000. 0.98 mi. Geneva City: Lake Front Arterial, Pts. 1 and 1A, (Acc 0.14). FAC 52-8P, FAC 52-9, FAGC 52-10, Ontario Co;

Bero Eng. Constr. Corp., McKinley Bldg., Buffalo, N. Y. CA **$662,047**, est. $692,000, 0.78 mi. Batavia City: Main St. and Oak St. extens. FAC 52-14, Genesee Co.; CA **$2,948,209**, est. $3,400,000. 1.04 mi. Thruway; (4.48 mi. access), New York State Thruway-Ontario Sect. Subdivision 5A, 5B, 6A, 6B and 7A, S.T. 52-22. O.T. 52-14, R.C. 52-102, Genesee and Monroe Counties;

Serafini Constr. Co. Inc., Conklin Rd., Binghamton, N. Y. CA. **$581,413**, est. $613,000. 1.41 mi. Watkins-Lodi, Pt. 3, S.H. 8035, FA.RC. 52-99, Schuyler Co.;

Slattery Contg. Co. Inc., 46-36 54 Rd., Maspeth, N. Y. CA **$4,257,644**, est. $4,813,600, 0.65 mi. Expressway, 1.72 mi. Access, Cross Bronx Expressway, Cont. 9S. FA.CBE 52-1, Bronx Co. Grand total $9,734,026. Bids Oct. 16. CD 10/20, under LB.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Frederick Share Corp., 233 Broadway, New York, N. Y., LB **$2,445,635**, river piers, Raritan River Bridge Contr. 5, Garden State Parkway, Sect. 7, Boro of Syreville and Woodbridge Twp., Middlesex Co. Bids Nov. 6. CD 10/22.

▲ **Manhattan Water Works, Inc.**, 1312 Randall Ave., New York, 59, N. Y., CA, **$1,349,086**, first section of new sewerage system, ELIZABETH, N. J. Bd. P. Wks., City Hall, Elizabeth, N. J. Bids Oct. 15. CD 9/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Joseph Weinstein, Inc.**, 66 Court St., Brooklyn, N. Y. LB **$1,447,000**, general constr. Public School 205, Bell Blvd., 75 Ave., 217 St. and 77 Ave., Queens Boro, BAYSIDE, N. Y. Co-ordinator of School Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 10. CD 10/24.

▲ **Beacon Hill Estates**, c/o Max M. Simon, archt., 1841 Broadway, New York 23, N. Y. Separate Contracts. **$1,500,000.** Garden APARTMENT co-operative housing, Beacon Hill Dr., DOBBS FERRY, N. Y.

▲ **Brady Constr. Co., Inc.**, 606 W. 47 St., New York 19, N. Y., LB **$1,842,000**, general constr. Junior HIGH SCHOOL 190, Proj. E-694, Austin St. and 68 Ave. FOREST HILLS, N. Y. Bd. Educ., Bureau Constr. 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 6. CD 10/16.

▲ **Barney & Martin Spiegel**, c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, N. Y. Owner Builds. **$1,300,000.** 102 HOUSES, 20 acre tract on Jerusalem Ave. west of Wantagh Ave., WANTAGH, N. Y.

▲ **Sunnycrest Homes**, c/o Abington Realty Co., 1737 Old York Rd., Willow Grove, Pa., Separate Contracts. **$1,123,500.** RESIDENTIAL DEVELOPMENT, Fitzwatertown Rd., ABINGTON, PA.

▲ **Arthur Schwartz Co.**, 7820 Whitewood Rd., Elkins Park, Pa., Separate Contracts. **$1,349,500.** RESIDENTIAL DEVELOPMENT, Ashbourne Rd. and Washington Lane, ELKINS PARK, PA.

▲ **John McShain, Inc.**, 17 and Spring Garden Sts., Phila., Pa., CA. **$40,000,000.** SHOPPING CENTER, 100 shops, department store, office, hotel and parking area. PHILA., PA. River Park Shopping Center, c/o contractor. CD 10/30.

▲ **Martin Development Co.**, 1426 Walnut St., Phila., Pa. Separate Contracts. **$1,400,000.** RESIDENTIAL DEVELOPMENT, Ridge Pike Park and Trooper Rd., TROOPER, PA.

▲ **Brusca Bros.**, 5131 Cypress St., Pittsburgh, Pa., LB Approx. **$3,000,000.** 18 two and three story bsmnt., 300 family HOUSING Project Pa 16-14, TURTLE CREEK, PA. Allegheny County Housing Auth., County Office, Pittsburgh, Pa. Bids Oct. 31. CD 10/24.

▲ **Piracci Constr. Co.**, 2552 Woodbrook Ave., Baltimore, Md. CA. **$1,385,000.** Phase II remodeling steel, concrete, limestone, marble COURT HOUSE, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore, Md. CD 10/14, under LB.

▲ **Bleznak Bros.**, 814 N. Broad St., Woodbury, N. J. LB **$3,228,493.** construct, manage and finance 379 HOUSING units, U. S. Naval Powder Factory, INDIAN HEAD, MD. Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. Bids Nov. 12. CD 10/17.

▲ **E. I. du Pont de Nemours & Co., Inc.**, du Pont Bldg., Wilmington, 98, Del., Own Forces, **$5,000,000** 1 story, 202x298 ft., textile LABORATORY, and 2 story section 62x282 ft. OFFICE, WILMINGTON, DEL. CD 10/23.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

December 19 Florida

STREETS AND ROADS

November 26 Louisiana

BIDS ASKED—BUILDINGS

▲ **N. C., Rocky Mount**—HOUSING—B.A. 12/2—Rocky Mount Housing Auth., Rocky Mt., 210 Negro housing units. $1,500,000. Plans deposit $25. Extended date. John J. Rowland, Kingston, archt. CD 9/26.

▲ **La., Monroe**—HOSPITAL—B.A. 12/5—St. Francis Sanitarium, Monroe, hospital addn. $2,400,000, Plans deposit $50. Smith & Padgett, 512 Ouachita Bank Bldg., Monroe, archts. CD 6/27/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **McWilliams Dredging Co.**, 909 S. Jefferson Dr. Parkway, New Orleans, La., CA **$2,644,633**, dredging Sunny Point Channel, Wilmington Harbor, NORTH CAROLINA. U. S. Eng., 308 Customhouse, Wilmington, N. C. Bids Nov. 6. CD 10/15.

▲† **Wright Contg. Co.**, 504 25 Ave., Columbus, Ga., LB. **$1,684,754**, paving and utilities, Marine Corps Depot of Supplies, NOY 75263, ALBANY, GA. Dpt. Navy, Officer in Charge of Construction, Box 465, Naval Base, S. C. Bids Nov. 6. CD 10/17.

▲ **Clement Betpouey Jr. & Co.**, 1432 National Bank of Commerce Bldg., New Orleans, La. CA **$1,141,564**, Divs. 3 and 4;

Hebert Brothers Engineers, P. O. Box 393, Plaquemine, La. CA **$1,055,493**, Divs. 5 and 6;

Roland Constr. Co., P. O. Box 850, Alexandria, La. CA **$594,573.** Div. E, water distr. sys., LOCKPORT, LA. Lafourche Parish Water Dist. 1, City Hall, Lockport, La. Grand total $2,791,630. CD 10/13 and 10/10, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **E. Carlton Wilton**, 1827 Hamilton Ave., Richmond, Va. Owner Builds. **$2,645,000**, two hundred and thirty 1½ story brick, concrete masonry RESIDENCES, at Beverly Hills, near RICHMOND, VA.

▲ **Robert L. Turchin, Inc.**, 1835 Purdy Ave., Miami Beach, Fla., CA, **$3,000,000**, OFFICE, MIAMI, FLA. Ainsley Corp., Townley Bldg., Miami, Fla. CD 7/3.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ind., Jeffersonville**—B.A. 12/19—City, City Hall, sewage disposal plant, $2,150,000. CD 7/21/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Ohio Power Co.**, 301 Cleveland Ave. S. W., Canton, O. Own Forces, 203 mi. 330 volt high transmission line from Muskingum River Generating Station at Beverly to Lima, in Washington, Morgan Perry, Fairfield, Licking, Franklin, Delaware, Union, Logan, Hardin and Allen Counties, **$9,700,000**; sub-station at near Lima, $2,200,000, OHIO. American Gas & Electric Service Corp., 30 Church St., New York 3, N. Y., consult engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Weinstein Constr. Co.**, 573 E. Talmadge St., Akron, O., CA. Approx. **$1,900,000.** 1 story 450x800 ft. FACTORY for warehousing and light mfg., on 28-acre tract, Gilchrist Rd. and Munroe Falls-Mogadore Rd. in Springfield Twp. AKRON, O. General Tire & Rubber Co., 1708 Englewood St., Akron, O. CD 9/27/44.

▲ **E. I. duPont de Nemours & Co., Inc.**, duPont Bldg., Wilmington 98, Del., Own Forces. **$10,000,000.** Mylar polyester film PLANT on 435 acre site on Scioto River, 2 mi. south of CIRCLEVILLE, O. CD 5/8.

▲ **Hyman Kaplan**, 3657 Rolistn St., Cleveland, O., CA Approx. **$5,000,000.** SHOPPING CENTER, 300,000 sq. ft. U-shaped bldg., incl. 3 story department store, 3,000 car parking space on 80-acre tract corner R 254 and 57, 5 mi. north of ELYRIA, O. The M. O'Neil Co., 226 S. Main St., Akron, O.

▲† **Gebhard-Berghammer, Inc.**, 5420 W. State St., Milwaukee, 8, Wis., CA, Approx. **$1,500,000**, 1 story, 76x460 ft. concrete block, steel, MILLING BLDG., WEST MILWAUKEE, WIS. Globe Steel Tubes Co., 3839 W. Burnham St., Milwaukee, 14, Wis. Milwaukee Bridge Co., 3282 N. 35 St., Milwaukee 16, Wis., engr.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. CA **$1,915,000.** 6 story, brick, steel, T-shaped, 1,110,000 cu. ft. HOSPITAL addn., Hamilton and Taylor Sts., DETROIT, MICH. Herman Kiefer Hospital, Taylor and Hamilton Sts., Detroit, Mich. CD 11/6, under LB.

▲ **Steinle-Wolfe, Inc.**, 128 N. Jefferson St., Fremont, O. LB. **$6,866,428.** six 14 story APARTMENT bldgs., Frederick Douglass Housing, DETROIT, MICH. Detroit Housing Comn., Harry J. Durbin, secy., 409 Griswold St., Detroit, Mich. Bids No. 5. CD 10/2.

▲ **Orchard Hills, Inc.**, Edward Nordman, 117 S. Main St., Romeo, Mich. Owner Builds. Est. **$3,000,000.** ranch, colonials, brick HOUSING DEVELOPMENT on 220 one acre sites, ROMEO, MICH. CD 9/17.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

December 3 Missouri

STREETS AND ROADS

December 3 Kansas, Missouri

▲ **Texas**—PIPE LINE—Bids Asked—Sinclair Pipe Line Co., Commerce Bldg. Addn., Houston, 90 mi. 12 in. products pipe line near Houston to Port Arthur. $3,085,000. CD 5/2.

BIDS ASKED—BUILDINGS

▲ **Tex., Dallas**—CONVENT—B.A. 12/3—Holy Trinity Convent, 3822 Gilbert St., convent. $1,550,000. Magulo & Quick, 336 Temple Bar Bldg., Cincinnati, O., archts. CD 10/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Western Contg. Corp.**, 400 Benson Bldg., Sioux City, Ia., LB **$4,333,468**, est. $3,386,633, earthwork, Stage IV, placement of 6,500,000 cu. yd. earth and chalk, Fort Randall Reservoir Proj., Inv. 25-066-53-89, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Nov. 7. CD 10/16.

▲† **Olson Constr. Co.**, 410 S. 7 St., Lincoln, Neb. CA. **$1,588,338**, POL facilities, hydrant aircraft refueling, Lincoln Air Force Base, Inv. 25-066-53-33, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 31. CD 11/6, under LB.

▲† **Enix Constr. Co.**, 207 N. Lincoln St., Amarillo, Tex., CA. **$1,170,943**, Lot 1, utilities, grading, ENG 41-443-53-17, at Camp Bowie, BROWNWOOD, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Oct. 23, awarded Oct. 30. CD 10/29, under LB.

▲† **Nolan Bros.**, 1210 Bldg. Exchange, Minneapolis, Minn., LB **$2,422,910**, Alt. A; concrete,

Condon-Cunningham, 4229 Lafayette St., Omaha, Neb., LB **$2,380,988**, Alt, B, bit. hot mix runways and

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DAM REBUILT WITH "GUNITE"

This is Lower Doughty Pond Dam belonging to the Atlantic City, New Jersey, Water Department, a poured concrete structure with fresh water upstream and tide water at the downstream toe. This structure became seriously disintegrated and eroded as shown in the upper photo, and was completely restored with "GUNITE" a minimum of six inches in thickness with double mesh reinforcement.

The lower view shows the finished job as completed by us. Both the upstream and downstream faces were restored with "GUNITE", as well as the wing walls.

Our 72-page general bulletin A-2400 describes this and scores of other uses of "GUNITE". We shall be glad to send it to you upon request.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA U.S.A

MANUFACTURERS
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taxiways, warm up apron at Carswell Air Force Base, ENG 42-443-53-16, FORT WORTH, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Nov. 6. CD 10/22.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **CALIFORNIA**—B.A. 12/19—Division of San Francisco Bay Toll Crossings, c/o Dept. P. Wks., 2054 University Ave., Berkeley, Zone 4,

Marin and Contra Costa Counties—4 mi. San Rafael Richmond Bridge over north arm San Francisco Bay between Richmond and San Rafael **$72,000,000.** Coverdale & Colpitts, 120 Wall St., New York, N. Y. Ralph A. Tudor, 74 New Montgomery St., San Francisco, engrs. CD 9/29.

BIDS ASKED—BUILDINGS

▲ **Calif., Ventura**—SCHOOL—B.A. 12/1—Ventura Union High School Dist., Ventura, Anacapa Junior High School, $1,300,000. Daniel, Mann, Johnson & Mendenhall, 4201 Sunset Blvd., Los Angeles, archts. CD 2/8.

▲ **Calif., Los Angeles**—HOUSING—B.A. 12/2—Housing Auth. of City of Los Angeles, 1401 E. First St., Jordan Downs low-rent housing, Project Cal 4-16, $3,000,000. Plans deposit $100. James R. Friend, 556 W. 5 St., San Pedro, archt. CD 9/18/50.

▲ **Calif., San Diego** — MEMORIAL HOSPITAL — B.A. 12/12—San Diego Hospital Assoc., San Diego Trust & Saving Bldg., 9 story, rein.-con. Donald H. Sharp Memorial Hospital, $3,500,000. Plans deposit $100. Frank Hope, 1447 6 St., and Johnson, Hatch & Wulff, San Diego Trust & Savings Bldg., archts. CD 3/21/51.

▲ **Ariz., Phoenix**—HOSPITAL—B.A. 12/16—State, 24 and Van Buren Sts., tuberculosis, continuing treatment bldg., overhauling cooling, heating equip. State Hospital, $2,000,000. CD 12/5/46.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WASHINGTON**—State Hy. Dpt., Olympia,

Manson Constr. & Eng. Co., 821 Alaskan Way, Seattle 4, Wash., CA, **$1,913,082**, est. $2,000,000 vertical lift steel bridge with steel trusses and rein.-con. approach spans 2,464 ft. long over Snohomish River on Hy. 1, between Everett and Marysville, Snohomish Co. Bids Nov. 6, awarded Nov. 6. CD 10/8.

▲† **Morrison-Knudsen, Macco Corp. & Peter Kiewit Sons,** Box 450, Boise, Idaho, LB **$2,987,374**, power house, Lookout Point Dam, Proj. CIVENG 35-026-53-20, Lane Co., OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Oct. 15. CD 9/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bechtel Corp.**, 220 Bush St., San Francisco, Calif., CA, Est. **$35,000,000,** REFINERY, with 40 mi. pipe line connecting with Edmonton, Alta.-Vancouver, B. C. pipe line under construction in Canada, FERNDALE, WASH. General Petroleum Corp. (subsidiary Socony-Vacuum) 612 S. Flower St., Los Angeles, Calif.

▲ **Carson Park Builders**, Box 8086, Long Beach, Calif., CA. **$2,470,400**, 182 frame, stucco HOMES, Farman, Johanna, Quigley and Stevely Aves. and Studebaker Rd., LAKEWOOD, CALIF. Carson Park Mutual Homes No. 4, Box 8086, Long Beach, Calif. Paul J. Duncan, 13310 Moorpark St., Sherman Oaks, archt.

▲ **Robert E. McKee, Inc.**, 4700 San Fernando Rd., Los Angeles, Calif., CA. **$7,057,000**, est. $5,000,000. Imperial-Compton low-rent HOUSING, Project Cal 4-13, LOS ANGELES, CALIF. Housing Auth. of Los Angeles, 1401 E. First St., Los Angeles, Calif. Bids Oct. 21, awarded Nov. 4. CD 10/27, under LB.

CANADA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **A. Jacques**, 511 Short St., Sherbrooke, **Que., CA $1,400,000,** HOSPITAL, Belevedere St., SHERBROOKE, QUE. Reverend Sisters of Gray Nuns, St. Hyacinthe, Que. A. Poulin, 1115 Prospect St., Sherbrooke, Que., archt.

U. S. POSSESSIONS

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Markplumb Contractors, Inc.**, 1911 West Ave., Miami Beach, Fla., LB **$1,504,795**, aircraft refueling sys. and cantonment paving, etc. at Ramey Air Force Base, Inv. 53-4, AGUADILLA, PUERTO RICO. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Oct. 22. CD 9/17.

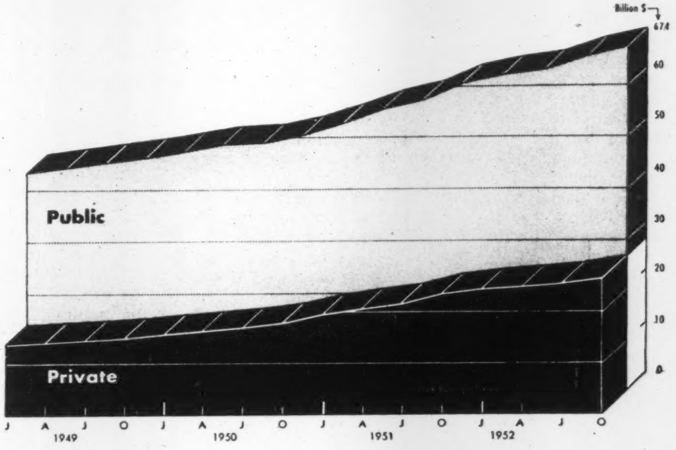
LATIN AMERICA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Arthur G. McKee & Co.**, 2300 Chester St., Cleveland, O., U.S.A. CA, **$6,625,000**. design and construct lubricating oil refinery, SALAMANCA, MEXICO, Petroleos Mexicanos, Pemex, Mexico City, Mexico. CD 1/4/51.

(Proposal Advertisements see pp. 114 to 116)



Backlog up $5.3 billion in 10 months

Engineering News-Record's backlog of heavy construction climbed to a new high of $67.4 billion in October. A rise of $5.3 billion in the last 10 months.

At the end of October, state and municipal public works valued at $27.9 billion accounted for the biggest share of the backlog. Private projects valued at $23.7 billion represented the next biggest block of proposed work, and federal construction made up the balance with $12.8 billion.

Private construction piled up an additional $3 billion in proposed work in the first 10 months of this year, adding to its backlog at a faster rate than public construction.

New mass-housing projects worth $1.3 billion were proposed in the first 10 months of this year. That meant that new mass-housing projects were going into the backlog of proposed work at a rate 41% faster than last year.

In October alone, more than $200 million went into the private mass housing backlog.

Most of these projects will not come out of the backlog at least until the end of the first quarter of next year. One reason housing starts are lagging behind contract awards is because a tightening money market has presented some financing problems.

ENR contract awards for private mass housing are 51% ahead of last year, while housing starts are less than 1% above last year.

And, indications are that if financing is available, next year will be as good as or better than 1952. It could run over 1,100,000 units.

Heaviest contributor to the increase in the private construction backlog was commercial building and mass housing, which grew by $1.3 billion to give a total figure of $9.3 billion.

All year, commercial building projects have been piling into the backlog at a progressively accelerated rate. And many of these projects will be moving into contracts and will add momentum to the present upswing in commercial building awards which are now 16% ahead of last year.

- **Industrial building still strong**—The backlog of industrial building went up $1 billion in the first 10 months of 1952. This is small when compared with the $3.1 billion that went in during the 1951 period. But the current $1-billion gain comes at a time when most of the defense industrial expansion is already under way, or, in some cases, completed.

The present gain in the backlog is

BACKLOG OF HEAVY ENGINEERING CONSTRUCTION OCTOBER 31, 1952

as reported by Engineering News-Record and Construction Daily, in millions of dollars

Type of construction	U. S. total	New England	Middle Atlantic	South	Middle West	West of Mississippi	Far West
All construction	**$67,405**	$3,338	$15,501	$8,697	$11,555	$17,189	$11,127
Public works	**40,684**	2,619	10,629	4,981	6,107	9,016	7,296
Buildings	**14,403**	1,077	4,360	1,964	2,406	2,619	1,976
Waterworks	**1,509**	71	425	178	278	415	142
Sewerage	**2,563**	140	670	334	663	516	239
Bridges	**2,147**	184	595	249	548	305	266
Earthworks, waterways	**7,781**	199	375	823	370	3,135	2,880
Streets and roads	**5,608**	504	2,058	645	1,106	643	652
Unclassified	**6,637**	443	2,146	788	735	1,384	1,141
Private	**26,757**	719	4,871	3,715	5,447	8,173	3,831
Industrial buildings	**10,356**	176	1,486	1,474	2,955	3,315	950
Mass housing & com'l bldg	**9,259**	335	2,841	889	1,597	1,927	1,669
Unclassified*	**7,142**	208	554	1,353	896	2,931	1,211

* Includes $46 million backlog of private bridges

important because it could signify an upswing in non-defense industrial expansion.

The outlook is also good for public works, where public buildings dominate with a total of $14.4 billion, of which $800 million represented a gain this year.

• South keeps rolling—The construction boom in the South can be expected to continue because the backlog of proposed projects has grown faster in the South than in any other region. So far this year, the South has added $1.3 billion, bringing its total of proposed work to $8.7 billion.

Business is also good in the region west of the Mississippi. That section, which has the biggest backlog ($17.2 billion) is accumulating new proposed work almost as fast as the South. This backlog increased by $1.2 billion in the first 10 months of this year.

The Middle West and Far West, with backlogs of $11.6 billion and $11.1 billion respectively, have both gained about $1 billion in proposed work this year.

The backlog is also getting bigger in the Middle Atlantic region. So far in 1952, it has increased by $700 million and now stands at $15.5 billion, second highest in the nation.

New England's backlog of $3.3 billion is about the same as it was at the beginning of the year.

$62-million bond sale authorized for new San Francisco Bay bridge

The California Toll Bridge Authority last week authorized the sale of $62 million worth of bonds for construction of a bridge across the north arm of San Francisco Bay between Richmond and San Rafael. Bond bids will be opened Dec. 20.

The construction bids will be opened Dec. 19, with substructure bids opened in the morning and superstructure bids in the afternoon.

Construction of the two-level bridge is expected to start early next year with completion of the upper level for two-lane traffic in mid-1956.

Completion of the lower level, with a change to three-lane, one-way traffic on each level, is planned when traffic warrants.

The authority authorized sale of further bonds, not to exceed a total of $72 million, for completion of the second level.

• Court fight threatened—The authority's action was taken despite threats by the North Bay Barrier Association that it would attempt to block the project in the courts. The association recently announced it planned to go ahead with a suit.

Gov. Earl Warren, chairman of the authority, maintained that there would be no point in holding up construction of the badly needed bridge in order to conduct a study of the feasibility of an anti-salt water barrier.

Such a barrier which might also be used as a vehicular crossing, has long been advocated by proponents of the so-called "Reber Plan" (ENR Nov. 24, 1948, p. 28)—and has been opposed for just as long by many responsible engineers as impractical. Nevertheless, Warren declared that he would be in favor of a study of the barrier plan independent of the bridge project.

It is not considered likely, however, these considerations would affect the Dec. 19 opening of construction bids.

This is the construction involved:

Substructure work will include bridge pier footings including anchor bolts for the steel work. Major foundations will be of the bell-bottom pier type, similar to those used on the Chesapeake Bay Bridge (ENR Oct. 26, 1950, p. 32). There will be 62 bell-bottom piers.

One proposal covers the two cantilever spans, each having a 1,000-ft main span and two 480-ft side spans. This includes 17,600 tons of steel.

A second proposal covers 36 truss spans each 289 ft long. The truss span involves 23,800 tons of steel. A third grouping involves 36 girder spans each 100 ft long. Steel totaling 3,000 tons is involved in this.

The fourth proposal combines all of the other three. Bidders submitting proposals on the entire superstructure must also submit bids for each of the separate groupings, but unit prices need not be the same.

The state plans to award the contracts by selecting the low individual proposals or the low combined bid, whichever produces the lower cost for the entire superstructure.

Superstructure contractors can start work on each pier as soon as the substructure contractor completes it.

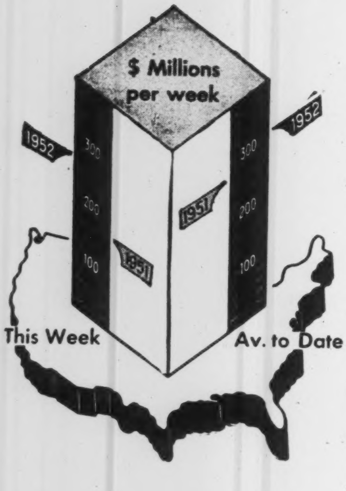
Bids for approach roads, toll plaza and the like will be called later.

The Richmond-San Rafael bridge was approved by the California Toll Bridge Authority late in September (ENR Oct. 2, p. 26). The new bridge should not be confused with the controversial proposed second crossing from San Francisco to Oakland.

Coverdale & Colpitts, engineering consultants of New York, estimated traffic for the first full year of operation will be about 4,000,000 vehicles.

Activity This Week

As reported to ENR
(in millions of dollars)



Contracts by type of work

	This Week	Cumulative 47 wks		
		1952	1951	% chge
Waterworks .	$3.3	$205.0	$187.2	+9
Sewerage ...	11.9	273.9	307.4	—11
Bridges	5.5	387.9	289.0	+34
Highways ..	19.6	1,328.0	1,081.4	+23
Earthwork, waterways .	6.2	445.1	462.5	—4
Buildings:				
Public	29.4	4,152.4	1,955.8	+112
Housg., pub.	14.7	573.6	593.8	—3
Housg., priv.	51.3	2,722.2	1,831.4	+49
Commercial	45.7	689.7	564.9	+22
Industrial..	52.8	2,561.7	3,810.4	—33
Unclassified.	29.5	1,239.7	1,513.0	—18
Total	**$269.9**	**$14,579.2**	**$12,596.8**	**+16**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100		
		1913	1926	1949
Constr. cost	**Nov.**	**588.61**	**282.94**	**123.39**
	Oct.	588.43	282.86	123.27
Bldg. cost...	**Nov.**	**426.04**	**230.30**	**121.10**
	Oct.	424.77	229.62	120.70
Volume	**Oct.**	**540**	**219**	**156**

Home market seen in public tenants

The government housing committee of the United States Savings & Loan League last week agreed to study a plan that would turn public housing tenants into home owners—and thereby open a brand-new housing market.

Behind the plan is a move to provide home ownership for those in the lowest income brackets.

Critics of the government's federal public housing program have contended for some time that it is a form of socialism because it involves public ownership of property for private use.

The new plan, proposed by Robert Souter, of West Coast Federal Savings & Loan Association of Los Angeles, Calif., would rely entirely on private enterprise. No public subsidies or tax exemptions would be involved.

This is how the Souter plan would operate:

New or used homes would be offered to low-income families, those with earnings of $160 a month or less, on long-term mortgages (30 to 40 years).

Interest rates would be low (3 to 3½%) because the city would insure the loan. This phase of the plan would parallel the government-insured FHA and VA loans. Souter said that elimination of the mortgage risk would justify the low interest rate.

To eliminate speculation, the purchaser of a home under these special terms would not be allowed to resell the home without permission of either a local housing body, the lender, or others directly involved in the transaction.

Before the program would be launched in a community, the city would have to show that it had a workable code of building standards and that enforcement of those standards was reasonably strict.

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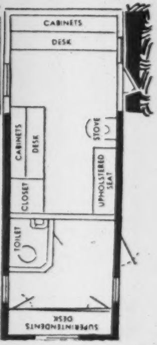

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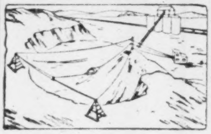
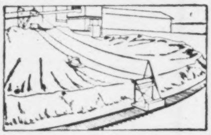

Sauerman Scraper Excavator Digs Gravel from Hill.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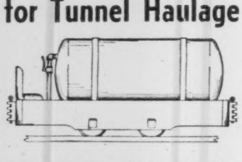

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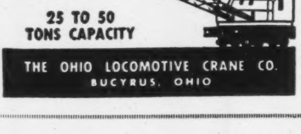

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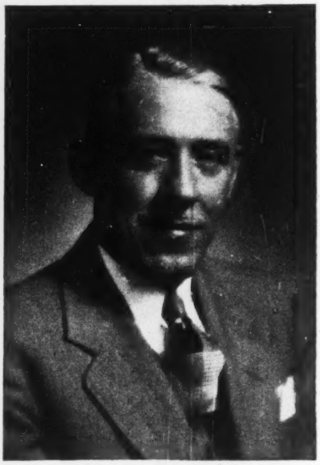

ARTHUR R. UPGREN . . . advanced prefabs for a high-cost market.

Prefabricators eye high-cost market

Optimism, born of hopes and theories for a bright future, pervaded addresses and discussions at a meeting of Prefabricated Home Manufacturers' Institute last week in Augusta, Ga.

With unspectacular sales figures for recent years as denial of prefabricators' earlier theories that their product would attract low-income families, two speakers last week advocated appealing to middle income families.

The prefabricated home of the future was viewed as offering luxury living by John C. Taylor, Jr., president of the PHMI. He advocated marketing procedures for mass-produced houses similar to those used by automobile manufacturers and dealers, complete with used-house merchandising methods to satisfy demand for better housing for low-income families (ENR Nov. 13, p. 19).

Taylor's reasoning was bolstered by Arthur R. Upgren, Professor of Economics of the University of Minnesota. Said Upgren: "A family's capital expenditure for, say, an automobile, is based not on need, but on income. Those with more money to spend demand items embodying the greatest degree of technological advancement." Applying his logic to housing, Upgren viewed advance prefabs as appealing to a high-price market, with "older, obsolete" models disposed of in the low-price market.

• Troubles stick around—The item of biggest concern to the prefab manufacturers was the fact that problems that appeared as major trouble spots when the industry got its first big push after World War II are still around, and still largely unsolved.

Most importantly, these still revolve around lack of widespread public acceptance of prefabricated homes—due in large part to the bad reputation the industry has acquired from fly-by-night operators who turn out "crackerboxes" at relatively high prices, and too-radical appearance of some of the homes.

Financial problems also have entered. Who is to finance the house from the time it leaves the production line until erection starts at the site and conventional construction loans become available.

There are sale and distribution problems, too, which not all the manufacturers have solved.

That public acceptance of prefabs still is low is indicated by sales figures. Prefabbers this year were taking small comfort in the possibility that 1952 sales would exceed 1950's record, 55,000 units. Totals for the last five years were hardly those of a booming industry: 1947-37, 400; 1948-30,000; 1949-35,000; 1950-55,000; 1951-50,000 (1951 was a disappointment as prefab makers had predicted doubling the 1950 total).

AT PHMI MEET were John C. Taylor, Jr., American Houses, Inc., president of PHMI; and Harry H. Steidle, PHMI manager.

Cautiously, the industry was predicting a 1952 total slightly larger than 1950 sales, basing their hope on an increase for the first nine months of this year of 14% over the same period last year.

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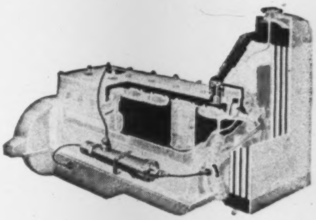

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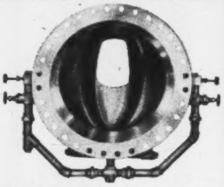

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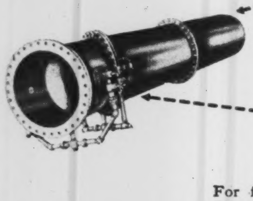

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Realtors optimistic on '53 building

A high note of optimism for continued peak construction during 1953 ran through the 45th annual convention of the National Association of Real Estate Boards held at Miami Beach, Fla., last week.

The realtors appeared confident that the Eisenhower administration will unpeg FHA and VA interest rates and that this action will be followed by a "flood tide" of home building.

The general opinion of the realtors was expressed in these comments from top men in the 49,000-member NAREB:

"'The change in administrations can only add impetus to industrial expansion," said Thomas J. McCaffrey, Jr., of Pittsburgh, president of the Society of Industrial Realtors.

"This will mean additional industrial construction, particularly planned industrial centers."

NAREB president Joseph W. Lund, Boston realtor and mortgage broker, said: "We believe housing starts in 1953 will top 1,000,000 and will exceed that considerably if the FHA and VA interest rates are unpegged."

Mark Levy, Chicago realtor who specializes in commercial, industrial and investment properties, said: "Insurance companies and other lenders will invest larger quantities of money in mortgages. Before the election, they did not have confidence in putting so much of their money into long-term investments, preferring more liquid forms."

The realtors agreed there was little prospect of lower construction costs in the immediate future. They also didn't think costs would go much higher, at least in the next six months.

• **Public housing**—The realtors also asked Congress to liquidate the public housing program, selling to private interest all units now in operation or under construction and to initiate a full-scale investigation into all public housing projects.

The policy statement suggested that interest rates on FHA and VA mortgages be allowed to vary "in accordance with the law of supply and demand operating in a free mortgage market," and it reiterated the NAREB stand in favor of liquidation of the Federal National Mortgage Association (Fannie Mae) and of a privately owned central mortgage bank.

The NAREB president in 1953 will be Charles B. Shattuck, Los Angeles realtor.

USBR sets $2.1-billion 6-year building program

The U. S. Bureau of Reclamation will present to the new Congress a six-year reclamation program that would cost about $2.1 billion and provide irrigation for 3,110,000 acres of land, and additional electrical generating capacity of 2,866,000 kw.

That announcement was the highlight of a three-day convention, at Long Beach, Calif., of the National Reclamation Association—a meeting that was replete with demands for greater local control of reclamation projects.

The protests against heavy-handed federal control were reflected later in a speech by Reclamation Commissioner Michael Straus, who asserted that his bureau "insisted" on more local jurisdiction.

Straus' announcement of the bureau's budgetary plans came in a talk signalizing the agency's celebration of its fiftieth anniversary, and after NRA delegates had heard other speakers (including Sen. William F. Knowland of California and Governor Dan Thornton of Colorado) decry control of large areas of Western states by an agency located in Washington. Straus threw some encouragement to California boosters by saying he was "emphatically in favor" of California taking over and operating the Central Valley project—but cautioned that such plans must take into account estimates that it would cost the state close to $4 billion over the next 50 years to buy existing CVP works and complete the plan.

• **Resolutions**—The association drove home its objections to federal controls in a resolution that called, among other things, for subjection of Secretaries of the Army, Navy and other federal officers—as well as the Secretary of the Interior—to state water laws.

Among 35 other resolutions, NRA:

Reaffirmed its opposition to valley or regional federal authorities; criticized the 160-acre limitation on individual parcels of reclaimed land; came out for sale of power from federal developments at the generating point, and avoidance where possible of duplicating transmission lines; urged that permission for "a limited and necessary amount of work by force account" rather than competitive bid contracts (now contained in Interior appropriations bills) be made permanent policy.

Additionally, the delegates by resolution expressed their opposition to Hoover Commission recommendations that civil functions of the Corps of Engineers be incorporated into the Department of Interior.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

Bids: December 23, 1952

Construction of a Bascule Bridge

NOTICE TO BRIDGE CONTRACTORS

Notice is hereby given that the Board of Public Works of the City of Appleton, Wisconsin will receive sealed bids for the construction of a Bascule Bridge, over the U. S. Government Canal at Lawe Street, Appleton, Wisconsin until 2:00 P.M., C.S.T., December 23, 1952 at the office of the City Clerk of the City of Appleton, Wisconsin, in the City Hall, at which time and place all bids will be publicly opened and read aloud.

Lump sum bids will be received for the construction of the bridge which includes removal of the existing bridge, concrete abutments, concrete roadway, structural steel, machinery, electrical work, relocation of underground pipes and miscellaneous work.

Each proposal for all the work set forth must be accompanied by a certified check in the amount of five per cent (5%) of the bid, or in lieu thereof, an executed contract and performance bond.

Plans, specifications, and other documents are on file at the office of the City Engineer, City Hall, Appleton, Wisconsin and at the offices of the Consulting Engineers, M. B. Coifman, 1220 N. Milwaukee Street, Milwaukee, Wisconsin, McMahon Engineering Company, 180½ Main Street, Menasha, Wisconsin where they may be examined. Copies may be obtained from the offices of said Engineers upon deposit of twenty dollars ($20.00) which will be refunded to bona fide bidders upon return of plans and specifications in good condition.

All work shall be completed and ready for acceptance within the time limit stated in the contract from the date of the notice by the City of Appleton to begin work.

The City of Appleton reserves the right to reject any or all bids, to waive any informalities in bidding, and to consider and give weight to the time specified in the proposals for the completion of the bridge in making the award.

No bids may be withdrawn after the opening of bids for a period of Seventy-five (75) days after the scheduled time of closing of bids.

Not less than the wage rates which have been established in accordance with the provisions of Section 348.50, Wisconsin Statutes, a schedule of said rates being on file in the office of the City Clerk of the City of Appleton, shall be paid. The letting of the work described herein is subject to the provisions of the Section 66.29 Wisconsin Statutes.

Published by authority of the Common Council of the City of Appleton, Wisconsin.
Dated: November 7, 1952

Robert T. Maves, City Clerk

Bids: December 16, 1952

Chattanooga Creek Intercepting Sewer

NOTICE TO CONTRACTORS
BIDS FOR
CHATTANOOGA, TENNESSEE

Sealed proposals or bids will be received by the City of Chattanooga, Tennessee, at the office of the Commissioner of Streets and Sewers, Room 204, City Hall, until 2:00 P.M. o'clock on Tuesday the sixteenth (16th) day of December, 1952, for the furnishing of all materials, labor, tools, and appliances necessary for construction of:

Chattanooga Creek Intercepting Sewer
under Contract 134-A

including approximately 6 miles of intercepting sewer ranging in size from 24-78 inches in diameter, complete with creek crossings, regulators, manholes and accessories.

Work shall be completed in 550 working days.

Copies of the proposal, contract documents, plans and specifications may be obtained from the office of the City Engineer, Room 205, City Hall, Chattanooga, Tennessee.

A charge of Thirty-five ($35.00) dollars will be made for each set of contract documents, proposal, plans and specifications.

Each proposal or bid must be accompanied by a cashier's or certified check on a duly organized Bank made payable to the City of Chattanooga, Tennessee, or a bidding bond executed by the bidder and a surety company authorized to transact business in the State of Tennessee, in the sum of not less than ten (10%) per cent of the total amount of the bid. Said check or bond will be returned to the unsuccessful bidder as soon as contract has been awarded and to the successful bidder as soon as he has executed the contract and furnished the necessary bonds, same have been approved by the City Attorney and the contract has been executed by the City.

All bidders must be licensed contractors as required by Chapter 135 of the Public Acts of 1945 of the General Assembly of the State of Tennessee. Bidder's name and license number must be placed on the sealed envelope containing these documents.

All bids must be made out on proposal form bound in the specifications. No interlineations, additions or deletions shall be made in the proposal form by the bidder.

The City of Chattanooga, Tennessee, through it's Board of Commissioners, reserves the right to reject any and/or all bids, to waive any informalities in the bids received and to accept any bid which, in its opinion, may be for the best interest of the City.

Pat J. Wilcox, Commissioner,
Department of Streets and Sewers.

Bids: December 16, 1952

Horizontal Sewage Pumps

NOTICE TO CONTRACTORS
BIDS FOR
CHATTANOOGA, TENNESSEE

Sealed proposals or bids will be received by the City of Chattanooga, Tennessee, at the office of the Commissioner of Streets and Sewers, Room 204, City Hall, until 2:00 P.M. o'clock on Tuesday the sixteenth (16th) day of December, 1952, for the furnishing of all materials, labor, tools, and appliances necessary for furnishing under Contract 134-C, three horizontal sewage pumps, 1 @ 18 mgd, 1 @ 25 mgd and 1 @ 30 mgd, complete with motors, bases, couplings and accessory equipment for installation by others into the proposed new Chattanooga Creek (23rd. St.) Pumping Station and services otherwise directed and required by the specifications. Equipment herein specified shall be delivered within not more than 400 working days.

Copies of the proposal, contract documents, plans and specifications may be obtained from the office of the City Engineer, Room 205, City Hall, Chattanooga, Tennessee.

A charge of Ten ($10.00) dollars will be made for each set of contract documents, proposal, plans and specifications.

Each proposal or bid must be accompanied by a cashier's or certified check on a duly organized Bank made payable to the City of Chattanooga, Tennessee, or a bidding bond executed by the bidder and a surety company authorized to transact business in the State of Tennessee, in the sum of not less than ten (10%) per cent of the total amount of the bid. Said check or bond will be returned to the unsuccessful bidder as soon as contract has been awarded and to the successful bidder as soon as he has executed the contract and furnished the necessary bonds, same have been approved by the City Attorney and the contract has been executed by the City.

All bidders must be licensed contractors as required by Chapter 135 of the Public Acts of 1945 of the General Assembly of the State of Tennessee. Bidder's name and license number must be placed on the sealed envelope containing these documents.

All bids must be made out on proposal form bound in the specifications. No interlineations, additions or deletions shall be made in the proposal form by the bidder.

The City of Chattanooga, Tennessee, through it's Board of Commissioners, reserves the right to reject any and/or all bids, to waive any informalities in the bids received and to accept any bid which, in its opinion, may be for the best interest of the City.

Pat J. Wilcox, Commissioner,
Department of Streets and Sewers.

Bids: December 16, 1952

Chattanooga Creek Pumping Station

NOTICE TO CONTRACTORS
BIDS FOR
CHATTANOOGA, TENNESSEE

Sealed proposals or bids will be received by the City of Chattanooga, Tennessee, at the office of the Commissioner of Streets and Sewers, Room 204, City Hall, until 2:00 P.M. o'clock on Tuesday the sixteenth (16th) day of December, 1952, for the furnishing of all materials, labor, tools, and appliances necessary for construction of: Chattanooga Creek (23rd. Street) Pumping Station under Contract 134-B including excavation, backfill, concrete substructure, brick superstructure, complete with plumbing, heating, ventilation, electrical work, mechanical equipment and installation of sewage pumps and motors.

Work shall be completed in 480 working days.

Copies of the proposal, contract documents, plans and specifications may be obtained from the office of the City Engineer, Room 205, City Hall, Chattanooga, Tennessee.

A charge of Twenty ($20.00) dollars will be made for each set of contract documents, proposal, plans and specifications.

Each proposal or bid must be accompanied by a cashier's or certified check on a duly organized Bank made payable to the City of Chattanooga, Tennessee, or a bidding bond executed by the bidder and a surety company authorized to transact business in the State of Tennessee, in the sum of not less than ten (10%) per cent of the total amount of the bid. Said check or bond will be returned to the unsuccessful bidder as soon as contract has been awarded and to the successful bidder as soon as he has executed the contract and furnished the necessary bonds, same have been approved by the City Attorney and the contract has been executed by the City.

All bidders must be licensed contractors as required by Chapter 135 of the Public Acts of 1945 of the General Assembly of the State of Tennessee. Bidder's name and license number must be placed on the sealed envelope containing these documents.

All bids must be made out on proposal form bound in the specifications. No interlineations, additions or deletions shall be made in the proposal form by the bidder.

The City of Chattanooga, Tennessee, through it's Board of Commissioners, reserves the right to reject any and/or all bids, to waive any informalities in the bids received and to accept any bid which, in its opinion, may be for the best interest of the City.

Pat J. Wilcox, Commissioner,
Department of Streets and Sewers.

Bids: December 17, 1952

VERTICAL LIFT BRIDGE

City of Buffalo, New York

The City of Buffalo, New York, will receive sealed bids until 11 A.M. eastern standard time on December 17, 1952, for the construction of a vertical lift bridge in South Park Avenue over the Buffalo River. The contract volume and plans may be examined at the office of the City Engineer, 401 City Hall, Buffalo 2, New York, and copies may be obtained upon deposit of $50.00 per set to be refunded upon return of sets in good condition within 30 days of award of contract. No proposal will be considered unless it is accompanied by bid deposit or bond as required under Instructions to Bidders. The right is reserved to waive any informalities or to reject any and all bids. A single lump sum bid will be received for the entire project.

Frederick W. Crane
Commissioner of Public Works

Bids: December 2, 1952

Construction Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 44 RELOCATION,
SECTIONS 11A, 14A & 15B

Construction of ten bridges and culverts and incidental grading and paving on Route 44 Relocation, Sections 11A, 14A & 15B, from Delaware Street to Swedesboro Avenue, West Deptford, East Greenwich, & Greenwich Townships, & Borough of Paulsboro, Gloucester County, Federal Project No. F-122 (11). The principal items of construction are:

Bridge Items	
Estimated:	
19,262	cu. yds. Concrete in Structures
1,447,060	lbs. Reinforcement Steel in Structures
37,250	lin. ft. Treated Timber Piles
22,500	lin. ft. Untreated Timber Piles
*6,000	lin. ft. Cast-in-place Concrete Piles
*6,600	lin. ft. Steel Bearing Piles
*Alternative Items	
10	M.B.M. Treated Timber Structure
	Roadway Items
18,837	cu. yds. Roadway Excavation—Earth
72,638	cu. yds. Borrow Excavation
12,465	sq. yds. Waterbound Macadam Base Course
12,465	sq. yds. Waterbound Macadam Inter. Course
1,361	tons Pavement, Type MA-BC-1
875	lin. ft. Rein. Conc. Culvert Pipe
4 172	lin. ft. White Conc. Vertical

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, December 2, 1952, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 413, 82nd Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the United State Employment Office, 21 Delaware Street, Woodbury, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: December 4, 1952

Soil Explorations and Foundation Investigations at Various Sites on Albany River Front Arterial Route City of Albany, Village of Menands Albany County, Which Constitutes Contract No. Spec. SM-47

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 4, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $40,760.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,038. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

Bids: December 4, 1952

Soil Explorations and Foundation Investigations at Various Sites on Route 17—Morsston and Twadell Brook Route 52, Interchange at Liberty, N. Y. Delaware and Sullivan Counties, Which Constitutes Contract No. Spec. SM-46

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 4, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) F. W. Donovan, Dist. Engr. 71 Frederick St., Binghamton, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $42,881.25.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,150. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provision of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

FOR FASTER SERVICE

send all proposal advertising to Classified Advertising Division, 29th Floor, McGraw-Hill Pub. Co., Inc., 330 W 42nd St, N. Y. 36, N. Y.

Bids: December 4, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Canal Law, and the requirements of the U. S. Corps of Engineers; Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 4th day of December 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1						
G. L. NICKERSON, District Engineer, 353 Broadway, Albany, New York						
Schenectady	U.S.88	Niskayuna: Barge Canal Lock 7		Extending & Installing Lock gates & Misc. Work	5% of bid Plans $10	Not Published
Greene	C.T.52-9 S.T.52-32 R.C.52-116	New York State Thruway Catskill Section Sub. 7 (Route 23A to 9W); Rte. 23 Interchange; Spooky Hollow Road; Athens Leeds Road; Catskill So. Cairo, S.H.613	Thy. 4.65 Acc. 2.89	9" Cem. Conc. Pavt. 2 @ 25' Var. Wide=7.14 Mi. Asp. Conc. Ty. 1A. Opt.=0.37 Mi. Misc. Work=0.03 Mi. Hy Sep. 4 Sp. Alpha I Beam 226.8' Interchange 2 Sp. Alpha I Beam 162' Hy Sep. Conc. Rig. Frame 34.8'	$279,000 Plans $50	$5,164,000
DISTRICT No. 2						
LACY KETCHUM, District Engineer, 109 No. Genesee St., Utica, New York						
Oneida	M.T.52-17 S.T.52-33 R.C.52-117	New York State Thruway-Mohawk Section—Sub. 5 (Verona-Lowell): Vernon-Verona Station, S.H.1930; Augusta Rd., Lowell & Spencer Sects., S.H.438 Tilden Hill Rd.; Town Road; App. to Tilden Rd.; Westmoreland-Lowell Rd.	Thy. 4.59 Acc. 1.60	9" Cem. Conc. Pavt. 2 @ 25' Var. Wide=4.96 Mi. Asp. Conc. Ty. 1A, Opt.=1.17 Mi. F. C. Gravel=0.06 Mi. Gr. Sep. 4 Sp. Alpha I-Beam 208' Gr. Sep. 4 Sp. Alpha I-Beam 206' Gr. Sep. 4 Sp. Alpha I-Beam 212.3' Gr. Sep. 4 Sp. Alpha I-Beam 272'	$146,000 Plans $50	$2,658,000
DISTRICT No. 3						
WILLIAM ROBINSON, District Engineer, Weigh Lock Building, Syracuse, New York						
Seneca	O.T.52-20 S.H.52-18	New York State Thruway Ontario Section—Sub. 2 (Stone Church Rd.-Tyre) Magee-Clyde Pt. 1A	Thy. 2.24 Acc. 0.39	9" Cem. Conc. Pavt. 2 @ 25' Var. Wide=2.24 Mi. Asp. Conc. Ty. 1A, Opt.=0.39 Mi. Interchange 4 Sp. Alpha I-Beam 226.5' Gr. Sep. 4 Sp. Alpha I-Beam 249.7'	$43,000 Plans $25	$788,000
DISTRICT No. 4						
J. P. LARSEN, District Engineer, Barge Canal Terminal, Rochester, New York						
Genesee	O.T.52-19	New York State Thruway Ontario Section—Sub. 6A (Leroy—Rte. 18 Interchange)	2.59	9" Cem. Conc. Pavt. Var. Wide=2.56 Mi. F.C. Gravel =0.03 Mi. Gr Sep. 4. Sp. Alpha I-Beam 230'	$28,000 Plans $15	$524,000
Monroe	O.T.52-18 S.T.52-31 R.C.52-115	New York State Thruway Ontario Section—Subs. 7A, 7B, 8A, 8B, (Winslow Rd—Rte. 15); Reed Rd.; East River Rd.; Farrell Rd.; Rochester-Scottsville Pt. 2, S.H.79	Thy. 2.84 Acc. 220	9" Cem. Conc. Pavt. 2 @ 25' & Var. Wide=3.47 Mi. Asp. Conc. Ty. 1A, Opt.=0.44 Mi. F.C. Gravel=0.95 Mi. Misc. Work=0.18 Mi. 3 Hy Seps. Structures Closed Box 31.2' 2 Alpha I Beam 138.5' & 287.7' 2 R.R. Seps. Alpha I-Beam 183' & 145.5' 1 Br. Alpha Girder 300'	$250,000 Plans $50	$4,543,000
DISTRICT No. 5						
C. R. WATERS, District Engineer, 65 Court St., Buffalo, New York						
Erie	F.A.C.52-6	City of Buffalo: Delaware Avenue Project No. U-1078(2)	1.63	Traffic Signal System	$4,000 Plans $10	$70,000
DISTRICT No. 8						
J. S. BIXBY, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Orange & Rockland	P.I.P.52-3 P.I.P.52-4P R.C.52-114	Palisades Interstate Parkway Pt. 1 & 2 (Rte. 45—Queensboro-Bear Mt.) Tompkins Cove-Highland Lake S.H.593 Highland Lake-Fort Montgomery S.H.5480	5.07	8" Cem. Conc. Pavt. 24'-30'-36'-42' Wide=2.16 Mi. Asp. Conc. Ty. 1A, Opt.=1.08 Mi. Roadside Improvement=1.83 Mi.	$70,000 Plans $25	$1,265,000
Orange	R.C.52-113	Cornwall-West Point Pt. 1 S.H.5498	0.01	Stone Retaining Wall & Misc. Work	$1,000 Plans $10	$18,000
DISTRICT No. 10						
J. J. Darcy, District Engineer, Montauk Highway, Babylon Long Island, New York						
Queens	F.A.V.W.E. 52-1 F.A.G.C.P. 52-1	Van Wyck Expressway Van Wyck Expressway Connection Grand Central Parkway Cont. 15 Project Nos. U-1085(14) U-658(18), U-741(20)	5.78	Roadside Improvement Recreational Facilities & Misc. Work	$43,000 Plans $50	$782,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, and Canal Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: December 4, 1952

Soil Explorations and Foundation Investigations at Various Sites on the Horace Harding Expressway Sections 1 & 2, Queens Boulevard to Nassau County Line, City of New York, Queens County, Which Constitutes Contract No. Spec. SM-45

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 4, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) J. J. Darcy, Dist. Engr. Montauk Highway at Little East Neck Road, Babylon, L. I., N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $21,705.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,086. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

Bids: December 9, 1952

Alterations for Rooms No. 900 and 1018—Phase II

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
CONTRACT EXD-130.004

Sealed proposals for performing alterations in Rooms No. 900 and 1018 in the Port Authority Building will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 3:00 P.M., Tuesday, December 9, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $25 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, November 20, 1952

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3839) will be received at Denver, Colorado, until December 16, 1952, for furnishing and delivering penstock manifold, including outlet branches; transitions, turbine inlet pipes, and outlet pipe manifold including transitions, wyes, nozzles and test heads for Palisades Dam and Power Plant, Palisades Project, Idaho. Delivery is desired within 749 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: December 10, 1952

Sanitary Sewer System

NOTICE TO BIDDERS
CITY OF PORTSMOUTH, VIRGINIA
WESTHAVEN LATERAL SEWERS

Sealed proposals will be received by the City Manager of Portsmouth, Virginia, at his office in said City not later than 11:00 A.M. Eastern Standard Time on December 10, 1952, at which place and hour they will be publicly opened and read, and contracts awarded as soon thereafter as practicable, for the construction of lateral sewers in the area west of Hamilton Avenue in the City of Portsmouth, Virginia.

The work is divided into four Divisions. Each bidder may submit a proposal for any Division, for all Divisions or for any combination of Divisions. Each Division comprises the construction of 8-inch vitrified clay pipe sewers with house connections, manholes, pavement replacement and other appurtenances. Divisions are designated as follows:

Division Ed, Lateral Sewers Tributary to Suction Well 3, includes approximately 50,000 feet of 8-inch sewer.

Division Ee, Lateral Sewers Tributary to Suction Well 4, includes approximately 35,000 feet of 8-inch sewer.

Division Ef, Lateral Sewers Tributary to Suction Well 2, includes approximately 41,000 feet of 8-inch sewer.

Division Eg, Lateral Sewers Tributary to the Hartford Street Pumping Station, includes approximately 13,000 feet of 8-inch sewer.

All work shall be in accordance with the Instructions to Bidders, Proposal, Agreement, Specifications, form of Performance Bond and Plans on file at the office of the City Engineer, Municipal Building, Portsmouth, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of these Contract Documents may be obtained from the City Engineer or from Greeley and Hansen, upon the deposit of $20.00 for each set. The amount of the deposit will be refunded if the Documents are returned in good condition within 30 days after the opening of bids.

A bank draft or certified check in the amount of not less than five per cent of the total of the bid, made payable to the City of Portsmouth, must accompany each proposal.

Bidders must be registered as Contractors as required under Chapter 175E, Section 4359 (117) Code of Virginia as amended by Chapter 404, Acts of Assembly, 1944.

The City reserves the right to waive any informalities in or reject any or all bids to accept the bid which it deems most favorable to its interest after all bids have been examined and canvassed.

CITY OF PORTSMOUTH, VIRGINIA
(Signed) I. G. Vass, City Manager

Bids: December 19, 1952

Bulkhead and Marginal Wharf Extensions

for
PORT OF PALM BEACH DISTRICT
WEST PALM BEACH, FLORIDA

Sealed proposals will be received at the office of the Board of Commissioners of the Port of Palm Beach District in the Port Terminal, Riviera Beach, Florida, until 2 PM, EST, on Friday, December 19th, 1952, for construction of 502.67 linear feet of steel sheet pile and concrete bulkhead for 34 foot water depth, 189.75 linear feet of steel sheet pile and concrete marginal wharf for 25 foot water depth, 150 linear feet of Greenhart timber dock, and for removal of material from the slips and turning basin. Contract documents pertaining thereto may be examined at the offices of: the Port District, Port Terminal, Riviera Beach, Florida; H. M. Tschirgi, Engineer, 404 Comeau Building, West Palm Beach, Florida and Gee & Jenson, Consulting Engineers, 309 Comeau Building, West Palm Beach, Florida. One copy of the documents, including bid forms to be submitted with a proposal, may be obtained from Gee & Jenson at no charge.

BOARD OF COMMISSIONERS,
PORT OF PALM BEACH DISTRICT
L. R. Bishop, Secretary

U. S. Government

Date: October 20, 1952

INVITATION TO BID

Sealed bids will be received in the office of Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone until 10:00 A.M., E.S.T., December 9, 1952, for furnishing all plant, tools, equipment materials, labor, and services, and performing all work for the construction of 22 masonry type quarters, buildings and appurtenances at Balboa, Canal Zone and 128 masonry and off-the-ground type buildings at Corozal Townsite Construction, Canal Zone, for Panama Canal Company.

Copies of specifications, drawings, and bidding papers may be obtained from Purchasing Agent, Panama Canal Company, 24 State Street, New York 4, N. Y. Requests should be acompanied by a $40.00 deposit for each set of combined specifications with drawings. Deposit to be in form of a United States money order or a certified check made payable to "Treasurer, Panama Canal Company".

Specifications and drawings may be inspected at the following places:

Panama Canal Company, 411 10th Street, N. W., Washington 25, D. C.

Office of the District Engineer, U. S. Engineer's Office, 180 New Montgomery Street, San Francisco 19, California.

Office of the District Engineer, U. S. Engineer's Office, 751 S. Figueroa Street, Los Angeles 55, California.

Office of the District Engineer, U. S. Engineer's Office, 1709 Jackson Street, Omaha 2, Nebraska

Office of Division Engineer, U. S. Engineer's Office, Southwestern Division, 1114 Commerce Street, Dallas, Texas.

Office of the District Engineer, U. S. Engineer's Office, Box 1538, Albuquerque, New Mexico.

Office of the District Engineer, U. S. Engineer's Office, 4735 E. Marginal Way, Seattle 4, Washington.

Office of the District Engineer, U. S. Engineer's Office, Foot of Prytania Street, New Orleans, Louisiana.
or at Panama Canal Company, 24 State St., New York 4, N. Y.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3837) will be received at Denver, Colorado, until December 16, 1952, for furnishing horizontal-shaft, centrifugal type motor-driven pumping units as follows under Schedule No. 1: 3 units with a capacity of 45 c.f.s. under a head of 55 ft; 3 units with a capacity of 24 c.f.s. under a head of 57 ft; 2 units with a capacity of 20.5 c.f.s. under a head of 51 ft; and under Schedule No. 2 the following; 2 units with a capacity of 8 c.f.s. under a head of 96 ft; 2 units with a capacity of 8 c.f.s. under a head of 65 ft; 2 units with a capacity of 7 c.f.s. under a head of 59 ft; and 2 units with a capacity of 4.5 c.f.s. under a head of 62 ft; for East Low Canal Laterals, Columbia Basin Project, Washington. Delivery is desired within 300 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3841) will be received at Superior, Nebraska until December 18, 1952, for furnishing labor and materials for: Earthwork, concrete canal lining, and structures, Station 1109+50 to Station 1129+50, Station 1146+00 to Station 1166+50, and Station 1210+00 to Station 1297+00, Courtland Canal, Superior Courtland Unit, Bostwick Division, Nebraska-Kansas, Missouri River Basin Project. Principal items are: Excavation—433,000 cu. yds.; concrete—1220 cu. yds.; furnishing and erecting untreated timber—32.4 M.b.m.; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, Superior, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado.

U. S. Government

SEALED PROPOSALS FOR THE PURCHASE OF 1854 TONS FERROUS SCRAP INCLUDING 1100 TONS HEAVY MELTING STEEL, CIRCULAR #14, FOR SALE BY PANAMA CANAL COMPANY will be received by Purchasing Agent, Panama Canal Company, 24 State St., New York 4, N. Y. and by Superintendent of Storehouses, Balboa, Canal Zone, until 10:30 A.M. E.S.T. December 29, 1952. Blanks and information available at 24 State St., New York 4, N. Y.

U. S. Government

NOTICE TO CONTRACTORS

Sealed bids will be received by the Chief of the Public Works Division, Office of Territories, Department of the Interior, Room 2713, Interior Building, Washington 25, D. C. until 2:00 P.M., Eastern Standard Time, January 12, 1953 for the construction of the following:

- Group I—St. Thomas, Virgin Islands—Project 53-105
  - Section A—Charlotte Amalie High School (1)
  - Section B—Alterations and additions to:
    - James Madison Elementary School (5)
    - Robert Herrick Elementary School (6)
    - James Monroe Elementary School (7)
- Group II—St. Croix, Virgin Islands—Project 53-504
  - Section A—Christiansted Consolidated School (1)
  - Section B—Alterations and Additions to LaValee Elementary School (4)

At the time and place indicated above the bids will be publicly opened and read aloud. Bids received after the hour set for the bid opening will be returned unopened.

Plans and Specifications and other proposed contract documents are open for public inspection at the office of the District Engineer, Virgin Islands District Branch, Public Works Division, Thomas G. Mooney, Charlotte Amalie, St. Thomas, U. S. Virgin Islands; M. A. Dyer Company, 24 School Street, Boston 8, Massachusetts; Lester M. Marx, Chief, Public Works Division, Room 2713, Interior Building, Washington, D. C.; A. G. C. Office, 1113 Congress Building, Miami, Florida; Builders Exchange, 46 Northeast 6th Street, Miami, Florida; U. S. Department of Commerce, #2, Puerto Rican Reconstruction Administration Grounds, Building N, San Juan, Puerto Rico; F. W. Dodge Corp., 119 West 40th Street, New York 18, N. Y.

A set of such documents may be procured from the office of M. A. Dyer Company (Architects and Engineers) at 24 School Street, Boston, Mass., upon deposit of $75.00 by certified check payable to the Treasurer of the United States, all of which will be refunded to bona fide bidders upon the receipt of the plans and specifications in good condition within thirty (30) calendary days from the date of bid opening. A bona fide bidder includes any person who submits a bid for a general contract but does not include a person who submits a quotation to the general contract bidders.

To persons who procure plans and specifications upon payment of the above stated amount, and who do not submit a bid, $60.00 will be refunded upon the receipt thereof in good condition within thirty (30) calendar days from the date of the bid opening. No refund will be made for return after that time.

Each bid must be accompanied by a satisfactory bid security (certified check or bid bond) in an amount of not less than 5 per cent of the total bid.

The successful bidder wil be required to furnish a performance bond and payment bond, each in the amount of 100 per cent of the contract price.

No bid may be withdrawn until thirty (30) calendar days after the scheduled closing time for the receipt of bids.

The Government reserves the right to reject any and all bids and to waive informalities with respect thereto.

The Government also reserves the right to award a contract for any or all sections on the basis of the basic bid for each section or any combination of sections or by the adoption of any or all of the alternates, whichever course is in the best interests of the United States.

Lester M. Marx
Chief, Public Works Division
Office of Territories

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3840) will be received at Kennewick, Washington until December 17, 1952, for furnishing labor and materials for earthwork, concrete canal lining and structures, Chandler Canal, Station 128+80 to Station 548+02, Kennewick Division, Yakima Project, Washington. Location: In the vicinity of Prosser, Washington. Principal items are: 702,000 cu. yds. excavation; 31,200 cu. yds. concrete; 196 M.b.m. lumber in bridges; 73,000 lbs. steel pipe and metalwork; and other work. Completion time 750 days. For particulars, address Bureau of Reclamation, Kennewick, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

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(Not available for equipment advertising)

$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.50 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

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The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS Address New York City Office, 330 W. 42nd St., N. Y. 36, for December 4th issue closing November 21st

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CONCRETE-HYDRAULIC ENGINEERS

New York engineering organization specializing in design and construction of power plants and industrial structures desires Engineers thoroughly experienced in design of heavy reinforced concrete foundations, steam and hydroelectric power plant structures. Work will include planning, assignment of work, supervision of design and specification writing. Applicants preferably should be at least 40 years old with about 15 years general field and office experience. Please submit complete resume.

P-5748, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

HIGHWAY DESIGNER

**Experienced in Expressway and Interchange Studies and Design.
Permanent Position with long established Consulting Engineering Firm.**

P-5787, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED
Experienced
Road Construction Superintendent

***Write or phone* MR. F. MELAUGH**
Old Colony Construction Co. of Quincy
Box 230, Quincy, Mass. President 3-0604

PUBLIC WORKS ENGINEER

For Southeast Architect-Engineer Firm.
Want thoroughly experienced and capable designer of water, gas and sewer plants and systems, drainage, paving, other municipal improvements. Top opportunity to man who can design, promote, and sell projects. Only complete and orderly applications will be considered

P-5820, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

JOBS AVAILABLE

Experienced Highway Draftsmen, Computers, Designers, Drainage and Construction Engineers, Soils Testing Engineers, for work on the New Jersey Garden State Parkway. Salary Open. Apply

F. E. HARLEY & ASSOCIATES
P. O. Box 113, Route #34
1¼ miles south of Main St., Matawan, New Jersey
Matawan 1-3366 or Matawan 1-3369

**Additional
Positions Vacant
Advertising
on pages 118 & 119**

CORROSION ENGINEERS

Leading engineering and construction firm offers staff positions to corrosion engineers with minimum of three or four years experience in corrosion investigations and design of cathodic protection on pipe lines and lead cables in country and city networks. Must be graduate electrical engineer (or equivalent). Work involves extensive travel, with headquarters in New York City. Salary commensurate with experience and ability. Good opportunity for advancement.

P-5749, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CONSTRUCTION ESTIMATOR

Qualified Estimator, thoroughly experienced in estimating and quantity take-off. Background in power plant work, process piping and general industrial construction absolutely essential. State education, experience, qualifications and salary requirements. All applications will be acknowledged.

P-5997, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

ASSOCIATE(S) FOR private California Civil Engineering firm. Competent to take charge large mapping contracts, construction, etc., especially in field. **P-5993, Engineering News-Record.**

CIVIL ENGINEER, experienced airfield pavement and drainage design. General Engineering Associates, 101 Park Avenue, New York.

CIVIL ENGINEER: An opportunity for the right engineer, experienced in design, layout and working drawings for streets, sewers and other utilities, with architectural and engineering firm specializing in industrial and commercial building projects. Permanent position. Reply Albert C. Martin & Associates, attn: N. B. Patten, 333 S. Beaudry Ave., Los Angeles 17, California.

DESIGN ENGINEER—Attractive future with progressive private utility for graduate with substantial water works design exp. on distrib. systems, reinforced concrete structures, cost estimating, specifications, hydraulic studies, pump performance and chem. treatment. Liberal salary commensurate with ability. P-5784, Engineering News-Record.

ESTIMATOR FOR building construction with General Contractor in Ohio. Sizable operations. Permanent connection for man with ability and initiative. State age, education, experience and salary expected. Willing to train man with limited estimating experience. Reply P-5988, Engineering News-Record.

(Continued on the following page)

DRAFTSMEN

**ELECTRONIC
MECHANICAL
STRUCTURAL
PIPING**

**Why It Will Pay You
To Work on Nuclear Powered Ships
with Electric Boat in
Attractive Groton, Connecticut**

OPPORTUNITY to pioneer in this great new field with Electric Boat, builders of the world's first atomic powered submarines.

STABILITY —no draftsman has been laid off at Electric Boat for over 20 years!

HIGH WAGES together with achievement and security, provide a strong basis for job satisfaction.

RELAXATION Leisurely living in the attractive community of Groton (near New London on Long Island Sound), within minutes of every recreational facility.

Don't wait—send resume now!

Mr. Peter Carpenter

ELECTRIC BOAT

Division of General Dynamics Corp.
GROTON CONNECTICUT

WANTED

MECHANICAL ENGINEER

Leading firm of Engineers, Designers and Construction require mechanical engineer having some experience with steam-electric central station design with specific and thorough experience on all phases of coal handling systems including unloading from rail or water, conveying, crushing, screening, distribution and sampling. Require general knowledge of capabilities and limitations of equipment commercially available. Initial work mainly on coal handling systems but must have ability to develop into well rounded general engineer capable of later handling all phases of central station design. State education, experience and salary desired.

P-5753, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

MECHANICAL ENGINEER

Established consulting firm, New York area, desires Mechanical Engineer, capable supervising starting, testing, operating and correcting troubles of steam-electric station equipment. Plant betterment work involving considerable travelling. Technical education, and plant operating or betterment experience required. State education, experience and salary desired.

P-5752, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

BRIDGE ENGINEERS

Designers, draftsmen, squad leaders, specification writers, field engineers. Good pay for qualified men. Opportunities for advancement. Pleasant working conditions. Interesting projects. Apply in person or write fully stating education and experience.

D. B. STEINMAN, ***Consulting Engineer***
117 Liberty Street New York 6, N. Y.

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

POSITIONS VACANT

(Continued from preceding page)

EXPERIENCED ESTIMATOR and Chief Engineer between the ages of 35 and 45, to take complete charge of office—make quantity take-offs p held price—buy—expedite and do some field supervision. All our work is competitive. We specialize in industrial, commercial and public works. Only experienced and high-grade men need apply. Permanent job for right man. Excellent salary and bonus. Office located in Ohio. Send qualifications, experience. Photograph optinal. P-5978, Engineering News-Record.

EXPERIENCED ESTIMATOR wanted for General Construction work. Experienced in quantity take-off and pricing. Permanent position with a future: Send complete resume and salary expected to: Brotherton Construction Co., Hill Station, P. O. Box 65, Harrisburg, Penna.

PLANT SUPERINTENDENT — New York Metropolitan college. Mechanical Engineering degree required. Experience in building construction and maintenance. Send complete resume of training and professional experience, personal data and salary expected, to P-5879, Engineering News-Record.

PLUMBING ESTIMATOR—Experienced man capable of assuming responsibilty to take charge of estimating and contract work. This is an exceptional opportunity with an old established plumbing contractor located in Connecticut. Write fully stating experience, reference, education, marital status and salary details. P-5991, Engineering News-Record.

STRUCTURAL STEEL detailer and checker. Permanent position. Vacation. Group Insurance and retirement plan. State experience and salary expected. J. G. Goundry, Barber & Ross Company, 5th & V Streets, N. E., Washington, D. C.

STRUCTURAL STEEL Detail Draftsman and Checkers. All types of Structures. Vacation, group insurance, good working conditions, top rates. Only top quality men. Send complete written information. Bristol Steel and Iron Works, Inc., Bristol, Virginia-Tennessee.

WANTED: CONSTRUCTION Superintendent for industrial and commercial construction; located Middle Atlantic States. Send full particulars: education, experience and salary in first letter to Lewis C. Bowers & Sons, Inc., 341 Nassau St., Princeton, N. J. Atten: J. R. Pelikan.

WANTED: CONSTRUCTION Engineers. Minimum 5 years' experience on industrial construction. Ages 30-45. Send full particulars: education, experience and salary in first letter to Lewis C. Bowers & Sons, Inc., 341 Nassau St., Princeton, N. J., Atten: J. R. Pelikan.

STRUCTURAL ENGINEERING

ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. ***Forty-first year. Write today.***

WILSON *Engineering Corp.*

College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

SUPERINTENDENTS AND PROJECT MANAGERS TRAINING COURSE

All instruction by mail. Send today for sample lesson and complete details

GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

POSITIONS WANTED

CHIEF ENGINEER—experienced structural, hydraulic and heavy mechanical work. Age 40. Regist.—Grad. Now employed. PW-5952, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

FIELD ENGINEER. Over 20 years experience in heavy industrial and commercial construction. Also highways and bridges. Available immediately. PW-5984, Engineering News-Record.

EXECUTIVE ENGINEER, long experience, management large company, heavy construction docks, foundations, tunnels, difficult subaqueous structures, etc. PW-5428, Engineering News-Record.

GENERAL SUPERINTENDENT—Capable of taking complete charge of all types of construction—Heavy industrial—commercial to low cost housing projects. Experienced organizer; time and cost conscious. Take complete responsibility for out of town job or branch office. PW-5861, Engineering News-Record.

PROJECT MANAGER or General Superintendent available shortly. Over 25 years diversified experience as Construction manager, Chief Engineer and Estimator on heavy construction, hydraulic dredging and allied fields. M A S C E. Registered Engineer. Desires responsible position with constructing company in New York City Metropolitan area. PW-5915, Engineering News-Record.

REGISTERED CIVIL Engineer with background of construction supervision, general management, promotion and heavy equipment sales. Presently employed as manager of a general construction company. Midwest location preferred. PW-5975, Engineering News-Record.

PART TIME WORK WANTED

DESIGN, DETAILING and Drafting on Bridges, Buildings and Roads. Work to be done at residential office. PTWW-5992, Engineering News-Record.

WORK WANTED

Quantity Surveys - Design - Drafting Technical Illustrations. Midwest Engineering & Technical Services, 44 West 113th St., Chicago 28, Ill.

PURCHASING AGENT

Desires employment with heavy industrial and commercial construction firm. Thoroughly experienced in subcontracting all branches of work. Purchasing all types of building materials, construction equipment, etc. Available at once. Write.

PW-5980, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

TEN (10)
DESIGN ENGINEERS

Available for Placement:

(Current project terminating in near future)

Will associate with established consulting or contracting firms (as an integrated group or on an individual basis) on chemical, petroleum, metallurgical, ordnance, or power plant projects.

Individual and collective previous experience of group includes many unique and diversified qualifications in mechanical and process design of above typical plants.

RESUMES FURNISHED ON REQUEST:

G. E. OWENS, JR.

P. O. Box 168 Toms River, New Jersey

FOR SALE
CIVIL ENGINEERING
and SURVEYING BUSINESS

Located in Chicago and grossing between $70,000 and $80,000 per year. Will pay three principals $10,000 annual income per person. $30,000 in records and field and office equipment. Terms can be arranged.

BO-5862, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ATTENTION CONTRACTORS:

List your equipment with us for quick sales. We also store your equipment in our yard for a small fee until sold if you desire.

Consult us for your equipment needs.

FINEST CONSTRUCTION & EQUIPMENT CORP.
147-47 Farmers Blvd., Jamaica 5, N. Y.
Tel. LA 7-3637

DERRICK WANTED

Steel guy derrick, capacity 10 to 20 tons, rigged for clamshell work, 90 to 100-ft. boom. State price and location.

W-5900, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

NOTICE

EXCAVATING CONTRACTORS
275,000 CUBIC YARDS OF DIRT TO MOVE

We are accepting bids on the removal of 275,000 cubic yards of dirt to be moved on our premises. Maximum haul 1000 yards. Ten acres of timber clearing to be done. Bids due at our office December 15, 1952. Work to start not later than January 1, 1953 and to be fully completed in approximately ninety (90) days.

If interested please write or phone for full specifications of cuts and fills.

FORT LINCOLN CEMETERY
3201 Bladensburg Road Washington 18, D. C.
Lincoln 3-3578

CHEMICAL ENGINEERS
AND
CHEMISTS
FOR
APPLICATION RESEARCH
IN
Fluorocarbon Polymers
WITH
Leading Organization in Petroleum & Petrochemical Fields

OPPORTUNITY to join a staff of highly trained and experienced scientists where initiative and ability form the basis for salary and increasing responsibility. The work involves the development of industrial and commercial outlets for new products, and these positions can lead to important jobs in technical service or chemical sales.

QUALIFICATIONS—3 to 5 years' experience in protective coatings, rubber compoundings, films and fibers. Ph. D. helpful but not essential. Applicants should have a pleasing personality and be able to deal with customers on a high technical level.

LOCATION—These research laboratories are conveniently located in metropolitan New Jersey.

(Two 1952 graduates interested in this type of work will be considered for our training program.)

Please send complete resume of background and experience and include salary desired. Interviews will be arranged promptly for qualified applicants.

Box #197, Room 1291
230 West 41 St. New York 36, N. Y.

STRUCTURAL STEEL DETAILERS—with at least four years' experience in structural detailing.

DETAIL DRAFTMEN—with at least two years' experience in structural detailing.

STRUCTURAL DESIGNERS AND DESIGN DRAFTSMEN—with technical training and experience.

Above openings are with Luria Engineering Company in Bethlehem, Pa. Ideal location, country living with city conveniences. Excellent working conditions, good pay and prospects with expanding organization for ambitious, energetic men.

● ● ● ● ● ● ● ●

Submit complete record, date available, and starting salary desired to:

J. H. Porteus, Chief Engineer
Luria Engineering Company
Eaton Avenue
Bethlehem, Pennsylvania

TRACTOR SHOVEL MEN

Caterpillar Tractor Co., Peoria, Illinois, has responsible positions open for field representatives to live and serve in continental United States. Knowledge of time study and techniques important. Experience with tractor-mounted shovels and an engineering background helpful. Send full particulars of experience and education to Mr. R. D. Evans, Sales Development Division.

CATERPILLAR
TRACTOR CO.
Peoria 8, Illinois

ESTIMATORS
For Power Plant Work

ELECTRICAL
Capable of taking of quantities and prices, both field labor and material. Minimum experience 5 years.

GENERAL
Capable of preparing complete estimates from scope of the work outlines.

Ours is a well-known firm of consulting engineers centrally located in Manhattan, New York City. Please outline qualifications and experience in first letter. Personal interviews will be arranged.

P 5935, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

STRUCTURAL ENGINEERS

New York engineering organization specializing in design and construction of power plants and industrial structures desires Engineers thoroughly experienced all phases of structural design, correlated with architectural design. Duties include planning, assigning of work, supervision of design, writing of specifications and requisitioning of materials. Applicants should have at least 15 years general field and office structural experience. Please submit complete resume.

P-5751, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SALESMAN—STRUCTURAL STEEL

An old and well established Company serving the North Central States area with fabricated and erected structural steel offers a responsible position to an experienced and capable estimator-salesman. Prefer graduate engineer, 35 to 45 years of age, with a considerable and successful background in this type of work. Replies should include full particulars as to age, education, experience, and marital status. Correspondence will be held confidential and interview arranged for if qualifications warrant.

SW-5961, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALESMAN

Call on heavy duty truck fleets. Contractors and industrial accounts in Bucks County, Penna., and southern New Jersey counties. Representing distributor of air cooled and liquid cooled gasoline and diesel engines and electric plants. Must have practical experience on internal combustion engines and able to do necessary field service. Good successful sales record required. Salary, expenses and commission. Permanent, good field with well established company. Replies must be detailed, give age, education, experience, positions held, earnings and availability.

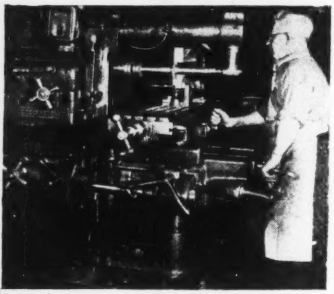
SW-5950, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CHEMIST

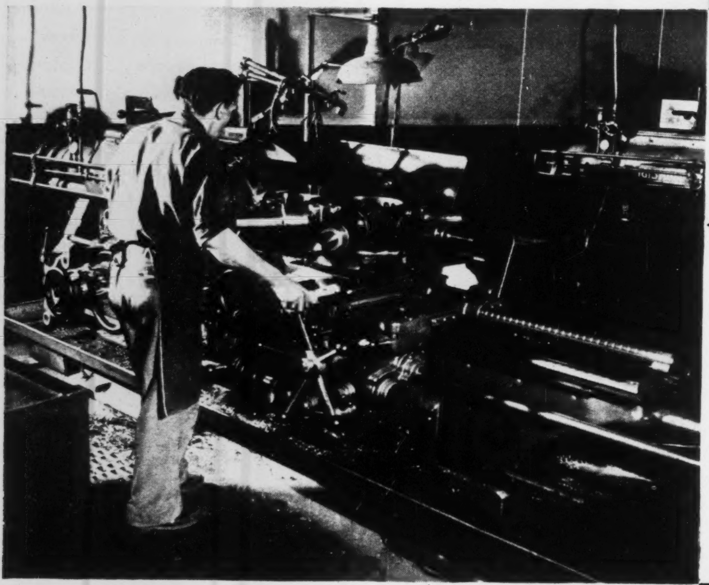
Chemist experienced analyzing power plant problems, capable prescribing water treatment methods and writing equipment specifications, training and supervising plant chemists and operators. State education, experience, salary desired.

P-5750, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

He works with Doctor-like thoroughness



Milling operation on #3 Brown Sharpe milling machine.
Milling slot in Hoist control lever for American locomotive crane now being rebuilt for Bobcock-Wilcox Tube Co., Barberton, Ohio.



Turret Lathe operation on #5A Gisholt turret lathe.
Turning—boring—facing and cutting to length. Bronze bushings for Lorain 820 turntable rollers. With parts in short supply as they are today, the ability to help ourselves is money in our customers' pockets.

Boring mill operation on 60 in. Niles vertical boring mill.
Turning and facing cylinder end casting for Robot laundry washer.

Rebuilding—to make like new—

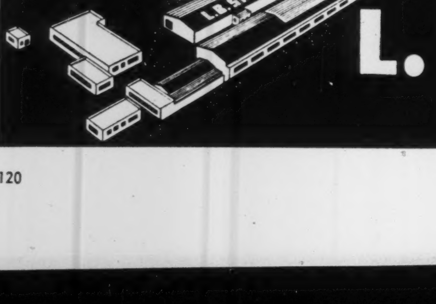
CONSTRUCTION EQUIPMENT

AN INVITATION

To Use the World's Largest Equipment Rebuilding Facilities

Where rebuilding is a business—with over 25 years of experience on all types of construction equipment—where highly trained mechanics with precision tools—can build back into your equipment many years of additional and efficient usefulness—using the same thoroughness employed in rebuilding our own used equipment.

You are invited to investigate our complete facilities.


L.B. SMITH INC.

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CAMP HILL, SUBURB OF HARRISBURG, PA.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 NO. 8

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Gardner-Denver 500 cu. ft. diesel, good operating condition.
Schramm 105 cubic foot gas powered compressor on 4 steel wheels.
Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condiiton.
Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

2540 Cedarapids AAAA primary unit on rubber, diesel power. Rebuilt.
2436 Lippman "Grizzly King" w/hopper, under-crusher conveyor, 75 HP motor.
2036 Cedarapids AAA primary unit on rubber, diesel power. Rebuilt.
1036/2418 Cedarapids Jr. Tandem unit on rubber.
Cedarapids Rock-It plant w/2025 jaw, 3033 hammermill. New.
1236 Cedarapids Model 6C plant. New.
4033 Cedarapids Model 6C plant. New.
2020 Cedarapids double impeller. New condition.
4024 Cedarapids roll. Rebuilt.
3018 Cedarapids roll. Rebuilt.
1236 Cedarapids twin jaw crusher. New.
4033 Cedarapids hammermill. New.
10x7 Allis Chalmers Blake type jaw crusher. Rebuilt.
#1 Cedarapids Kubit impact breaker. New condition.
B-3 Jeffrey swing hammer pulverier. Rebuilt.
4' x 12' Cedarapids double deck Ag lime screen.
4' x 6' Kennedy Van Saun single deck screen.
3' x 6' Kennedy Van Saun triple deck screen.
60" dia. x 14' long Traylor revolving screen. Rebuilt.
36" Wemco single pitch sand screw. New condition.
15 cu. yd. Cedarapids sand drag. New.
16" x 90' bucket elevator.
60-ton, 2-compartment, 8' x 18' storage bin w/clam gates.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.

TRUCKS—TRAILERS

27FD Euclid rear dumps.
28FD Euclid rear dumps.
1½-ton Ford with any body.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Osgood Model 900, 1¾ yd. diesel combination.

Lorain 40 truck crane on Mack 3-axle truck.

Unit 514, ½-yd. gasoline crawler shovel. Good condition.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 636 for ¾-yd. to 1-yd. crane.

BACKHOE BUCKETS & ATTACHMENTS

Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #6105. 44" cutting width.
¾-yd. Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

LIFTING MAGNETS

1—45" Ohio lifting magnet, rebuilt.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd. Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.
Esco 2½-yd. cast weld dipper with bail & teeth.

CONCRETE EQUIPMENT

Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.
Koehring 10'-12' finishers, rebuilt.
Cleveland formgrader, new 1944, rebuilt.
Corr formgrader, new 1944, rebuilt.

TRACTORS

TD-24 International with Bucyrus-Erie angle-blade.
TD9 International diesel with 1 yd. Loadover.
Model CR Tournapull w/16-yd. Model E16 Tournarocker, rebuilt.

WELL DRILLS & TOOLS

Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

Barber-Greene 44C Trenching Machine 18" to 24" cutting width, 7' depth.

PUMPS

New Layne Bowler type 18 deep well pump with right angle gear drive. 3000 GPM at 120' TDH.
Used and rebuilt pumps, all sizes, gasoline, electric or diesel.

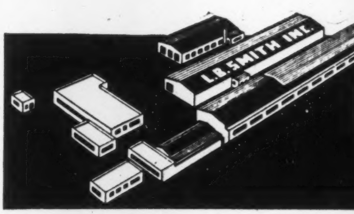
GRADERS

Austin Western 77 tandem drive, scarifier, 12' blade, gas power, hydraulic controls.

GASOLINE AND DIESEL ENGINES

Caterpillar D-13000, rebuilt.
Murphy ME-6, & ME-46, rebuilt.

Phone **HARRISBURG, PA. 7-3431**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CAMP HILL, SUBURB OF HARRISBURG, PA.

CARLYLE
INDUSTRIAL RUBBER PRODUCTS
FOR EVERY PURPOSE

IMMEDIATE DELIVERY OF CONVEYOR, ELEVATOR AND TRANSMISSION BELTING—FIRE, WATER, SUCTION, AIR, STEAM AND WELDING HOSE

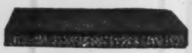
WHY WAIT
We have 8 to 48

RUBBER CONVEYOR BELTING

TOUGH COVERS—Heavy duty, specially compounded abrasive resistant rubber covers having high tensile strength. Thoroughly capable of withstanding the abrasive action of bulk materials. Properly vulcanized to the carcass to assure utmost performance, economically.

STRONG CARCASS — Constructed of finest quality 28 and 32 ounce tough cotton duck, properly treated and impregnated to avoid mildew from moisture and atmospheric conditions. Each ply thoroughly embedded in rubber to prevent ply separation.

FLEXIBILITY — Careful attention has been given in the construction of all belts to have the proper flexibility assuring the following desirable features; troughs easily, runs true on all idlers, gouge resistant, excellent for long and short hauls and slope installations.



Avoid delays in your production schedules!

We carry in stock for your immediate requirements, Conveyor Belting in widths from 8 inches to 48 inches.

Width	Ply	Thickness Top Cover	Thickness Bottom Cover	Type of Duck Carcass
8"	4	1/16"	1/32"	28 Oz.
10"	4	1/16"	1/32"	28 Oz.
12"	4	1/16"	1/32"	28 Oz.
14"	4	1/16"	1/32"	28 Oz.
16"	4	1/8"	1/32"	28 Oz.
18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
24"	5	1/8"	1/32"	28 Oz.
26"	5	1/8"	1/32"	28 Oz.
30"	4	1/8"	1/16"	32 Oz.
30"	5	1/8"	1/16"	32 Oz.
30"	6	1/8"	1/16"	32 Oz.
36"	6	1/8"	1/16"	32 Oz.
42"	5	1/8"	1/16"	32 Oz.
48"	5	1/8"	1/16"	32 Oz.
48"	8	1/8"	1/16"	32 Oz.

INQUIRE FOR SIZES NOT LISTED
ELEVATOR TRANSMISSION & V-BELTING ALSO IN STOCK

All our belting made by the leading belting manufacturers.

Write for Free Booklet on Installation, Care & Maintenance of Conveyor Belting.

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STOCK SPECIALS

For Sale or Rent

1—P & H Model 700 Crawler mounted Crane, 1½ yd. capacity. Gas power. Good all-around condition.

1—Osgood, 1 yd. Crawler Hoe & Crane, 50' boom. Gas Power. Good Condition.

1—Bay City Model 45 Crawler Hoe-Shovel, Gas Power. Late Model.

1—Bay City Model 45 ¾ yd. Crawler Hoe-Shovel-Crane. Powered by Cat 0-318 diesel. Late model in perfect condition.

1—Buckeye Model 70, ¾ yd. Crawler Hoe & Shovel. Late model. Diesel power.

1—Lorain Model 40 Shovel, ¾ yd. Crawler Crane & Hoe, gasoline power. Rebuilt.

1—Byers, Model 83, ¾ yd. Crawler Hoe or Crane, gasoline power. Rebuilt.

1—Bay City Model 30, Heavy Duty ½ yd. Crawler Hoe-Crane, gas power. Good all-around condition.

1—Bay City Model 25, ½ yd., Crawler Hoe-Crane, gas powered. Excellent condition.

1—Insley Model K-12, ½ yd., 1946, Hoe, on 18" Crawlers. Powered by Buda Gas Engine. Excellent condition.

1—Bay City Tractor Shovel, Hoe or Crane, "Pup" ⅜ yd., ¾ swing. Crawler mounted, gasoline driven.

1—Browning Truck Crane, on Hendrickson Carrier 10-11.00x20" tires 45 ft. Boom, 17½ ton capacity. Late Model. Excellent Condition.

1—Universal Truck Crane, 28 ft. Boom, mounted on A. C. Mack Chassis. Single axle rear.

1—P & H 255A Hoe Attachment.

Clamshell Buckets, ⅜ to 2 cu. yd., also several Crane Booms—Trench Hoes and Shovel Attachment—Assorted makes.

Check on what you may require.

EUGENE P. READING, INC.
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SPECIAL SALE
USED INTERNATIONAL MODEL TD-18 TRACTORS

Your Choice $5,000.00 Each
All Brandeis Property

1 Tractor complete with Heil Angle Blade and D.P.C.U. Steering clutch has been overhauled. Machine in good condition. S-62(B) PADUCAH, KY.

1 Tractor complete with Bucyrus-Erie Hyd. Bullgrader and Carco Mdl. G Towing Winch. Cleaned and painted. S-2146(B) LOUISVILLE, KY.

1 Tractor 20" square corner shoes, crankcase guard, front pull hook. Complete with Heil Cable Angle Blade and D.P.C.U. Serial No. TDR-11306. S-1770(B) LOUISVILLE, KY.

1 Tractor, 74" WG, complete with Isaacson Cable Bulldozer and Heil S-2 D.P.C.U. S-1648(B) LOUISVILLE, KY.

1 Tractor complete with Bucyrus-Erie Hyd. Bullgrader. This machine in good operating condition. S-1915(B) LOUISVILLE, KY.

1 Tractor complete with Heil Angle Blade and D.P.C.U. Good operating condition. S-1918 (B) LOUISVILLE, KY.

1 Tractor complete with Heil Angle Blade and D.P.C.U. Tractor cleaned an dpainted. Looks good—runs good. S-2061(B) LOUISVILLE, KY. We have available a limited supply of used Isaacson and Carco Towing Winches for these tractors. These winches are all attractively priced and subject to your inspection at our Louisville office.

Subject to prior sale

LOUISVILLE MIDDLESBORO **BRANDEIS** EVANSVILLE PADUCAH

BRANDEIS MACHINERY & SUPPLY COMPANY, INC.
LOUISVILLE *Since 1908* KENTUCKY

EQUIPMENT FOR SALE

1—D8 Tractor with Bulldozer, new 1949, completely overhauled
1—D4 Tractor with Hydraulic Dozer—electric and/or diesel
1—Austin-Western Motor Grader
1—Oliver, Model 80, Rubber Tired Tractor
1—Model C Scoopmobile with 1 yard bucket
2—60 K.W. Diesel Generators
3—500 c.f.m. Ingersoll-Rand Portable Compressors
1—No. 2½ Kent 2 Hopper Mortar Mixer
2—Cement Guns, Size N-2, with Worthington Pump and necessary hose, nozzles, etc.
2—Single Drum, 40 H.P. Clyde Electric Hoists
24—1½ yard Blaw-Know, R-46, Concrete Buckets

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Grahamsville 2861

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13-Yard Bottom Dump
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Attractive prices
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Locomotive Cranes
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41-B, 50-B, 30-B, DE
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NEW OR FACTORY REBUILT
FOR SALE • • • FOR RENT
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Suitable For All Types Of Construction Equipment
• Mobile Cranes • Low Bed • Mobile Compressors • Truck • Tractor
Regular Highway and Non-directional on and off the road type tires.

750/20	8 ply un-used non-directional tires and tubes	$32.50
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1100/20	12 ply highway 95% tread takeoffs	55.00
1400/24	16 ply new Goodrich highway tread tires	149.50
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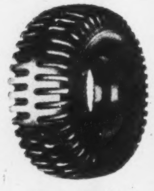
1400/24	20 ply non-directional tread takeoffs—75% tread	99.00

EVERY TIRE GUARANTEED TO BE IN PERFECT CONDITION
Tires Shipped Everywhere—25% With Orders—FOB Everett, Mass.
Inquiries Promptly Answered • We can supply tires and tubes for all types of grader and heavy duty construction equipment.



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CRANES: 2—Overhead Electric Traveling Cranes, 7½ ton capacity, 80' span, 4 motor, bucket operating, 440 volt, AC, cage control, both in operation. One available now, one January 1953. With or without one Hayward 2-½ yd. capacity, type E, bucket; one Blaw Knox 2-½ yd. type 730-W bucket, rebuilt.

LOCOMOTIVE CRANE: 25 ton capacity, thoroughly modern, gasoline powered, case steel trucks, air brakes, with or without 1-¼ yd. Hayward clam shell. Sale or rent.

COMPRESSOR: Worthington DC2, 29/18-½ x 21, motor 600 H.P. synchronous, 440 volt, with all auxiliary equipment.

MINE HOISTS: Single and double drum 100 to 1500 H.P. with all electrical equipment. Complete specifications, drawings and photos available.

DIESEL MOTOR: Caterpillar D13000 portable on skids, 122 H.P.

WE BUY AND SELL EQUIPMENT THROUGHOUT NORTH AND CENTRAL AMERICA.

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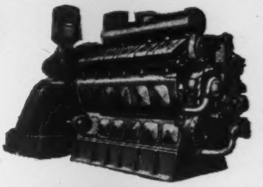
UNIT CAPACITIES—10 TO 1875 KVA

A.C.—50 AND 60 CYCLES

VARIOUS VOLTAGES



A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1500	Fairbanks Morse	33E16	2000	300	320	Buckeye	80	480	600
1136	Fairbanks Morse	38D	1600	720	320	Enterprise	DSG-6	560	450
1100	General Motors	16-278A	1600	720	300	General Motors	8-268A	450	1200
1000	General Motors	16-567B	1440	720	250	Fairbanks Morse	37-E	375	360
750	General Motors	12-567	1080	720	200	General Motors	8-268A	350	900
500	Baldwin	VO-8	750	514	100	Worthington	BB-5	150	600
500	General Motors	8-278A	750	720	100	General Motors	3-268A	150	1200
500	General Motors	8-567	720	720	60	General Motors	6-71	90	1200
400	Ingersoll-Rand	S-8	600	720	30	Internat'l Harvester	UD-14	45	1200
350	Baldwin	VO-6	510	450					

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1035 CFM Ing. Rand Air Comprs. new 1949.
65 Ton G.E. Diesel Elec. Locomotive.
50 Ton Colby 240 Elec. Gantry Crane.
3 Yd Lima 1201 Dragline 120' Bm. 1947.
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½ Yd Link Belt LS-50 Shovel-Backhoe-Crane.
130 HP Christian 2D Diesel Hoist.
10 Ton Unit 1020 Pneu. Tired Crane.
25 Ton Wiley Steel Stiffleg. 110' Bm.

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1—Brookville 10T-30" Ga. Diesel—Like New.
1—Plymouth 20 Ton Diesel—48" & Std. Ga.
2—Plymouth 25 Ton—36" Ga.—Gas.
3—Whitcomb—15 Ton—36" Ga.—Diesel.
5—Trucks Complete with Motors. Whitcomb 65 Ton Diesel-Electric. Like new Bargains.

1—WHITCOMB-0-4-0-STD. GA, 50 TON DIESEL ELEC.—BARGAIN

19—Hopper Cars—15 Ton—36" Ga.
3—Hopper Cars—50 Ton. Excellent.
2—Conway Mod. 75 Muckers. #256 & 305. Bargains.
Southwark 500 Ton Hydraulic Press—High Speed—Like New.

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1—TL 20 Lorain Truck Crane
1—20-Ton Bay City Truck Crane, 80' Boom, 15' Jib
1—20-Ton N. W. Truck Crane
1—¾ Yd. Bay City Diesel Crane
1—¾ Yd. Northwest 25 Backhoe and Dragline, 1948
4—500 cu. ft. Chicago-Pneumatic Diesel Air Compressors
1—2 Yd. Koehring 803 Crane
1—30-Ton Davenport Diesel Locomotive
2—1¼ Yd. Bay City Crane or Shovel, Diesel
1—45' Boom & 10' Jib for Link Belt 85 or 90, New
1—45-Ton G.E. Diesel Elec. Locomotive
1—50-Ton Whitcomb Diesel Elec. Locomotive
1—65-Ton G.E. Diesel Elec. Locomotive
1—40-Ton Industrial Brownhoist Oil Fired Loco. Crane, New 1943

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SHOVELS—CRANES—DRAGLINES
Buc-Erie 170-B Electric Shovel. New 1949.
Buc-Erie 120-B Electric Shovel. 5 yds.
Page 625-S Diesel Dragline 150 ft. boom.
Page 618-S Diesel Dragline 110 ft. boom.
Northwest 80-D Diesel Shovel, rebuilt, 2½ yd.
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P&H 855-B 1½ yd Shovel-Crane-Drag. Diesel.
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Cat. D-4 Tractor with Athey Mobile Loader.
Cat. D7 Traxcavator. Rebuilt.
Cat. D4 Traxcavator. Rebuilt.
Hough Payloaders Models HLA, HFH, HE, HA.

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B-K P-4120, 3 compt., agg., one for cement.
Large plant 212 yds., 6 compt., agg. and cement elevators, 56-S Mixer. Excellent.
Large plant 400 yds., 5 compt. with 2 yd. Koehring Mixers. Write for details.
Cement bin 400 bbls. with batcher. NEW.
Agg. bin. 100 tons 3 cpts. 2 yd. weighbatcher, NEW.

ASPHALT PLANTS
Barber Greene Model 842 Utility Plant
McCarter Iron Works Complete 3000# pug mill.
Cummer 1500 lbs. Semi-Port. Very good.
Std. 1500 lbs. Batch. Sta. Bit.
Simplicity Model S-100. Diesel powered.
B-G Model 840-830 Maintenance Plant. Complete.

STIFF LEG AND GUY DERRICKS
Steel Stiff leg Derrick 100 Ton 100' Boom.
Steel Stiff leg Derrick 25 Ton 80' Boom
American 20 ton stiff leg derrick 90' boom.
Stiff leg derrick 15 ton 100 ft. boom.
American 20 ton Guy derrick 100 ft. boom.

CONCRETE MIXERS AND PAVERS
2—Koehring Tilting Mixers, 4 yds. Complete.
Smith 56S Tilting Mixer, 2 yds.
Jaeger BP-5 Asphalt Paver & attachments.
2 Ransome 34-E Dual Drum Pavers Diesel.
Rex 28-S Builders Mixer, Elec. NEW 1947.

ROAD AND AIRPORT FORMS
Blaw-Knox and Heltzel 8100 ft. 9"x9"; 10,000 ft. 8"x8", 6000 ft. 12"x9" airport forms.

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Cable RICHWALSH Cortlandt 7-0723-4

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Used only on one job
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LOCOMOTIVES

1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

FOR SALE OR RENT

Cat. D7 Bulldozer #4T5988
Cat. D7 Bulldozer #4T6542
Cat. D8 Tractor #8R8926
Cat. D8 Tractor #8R8933

WILLIAMS CONSTRUCTION CO.
Middle River, Maryland Phone: Essex 1310

COMPLETE TUNNEL EQUIPMENT

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3—1035 c.f.m. Ingersoll-Rand Stationary Compressors with 200 H.P. Electric Motors, Air Receivers, Aftercoolers and made-up piping.
10—Ingersoll-Rand No. 229 DJB Drill Booms
16—Ingersoll-Rand DA35, wet type Drifters

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3—#40 Eimco Rockershovels
4—#75 Conway Muckers

For Hauling
(all 36" gauge)

6—Greensburg, 11 ton, Electric Locomotives
3—Whitcomb, 10 ton, Electric Locomotives
3—40 K.W. Battery Charging Units
2—20 K.W. Battery Charging Units
1—Plymouth, 10 ton, Gas Locomotive
8—5 yard Side Dump Muck Cars
6—2 yard Koppel Dump Cars
30—Flat Cars

For Ventilation

2—7300 c.f.m. Roots-Connersville Blowers
1—Joy Axivane Fan, series 1000
12,000'—24" Vent Pipe, Lock Joint, 14 gauge

For Concreting

2—¾ yard Hackley Pneumatic Concrete Placers
1—Model 190 Rex Pumpcrete Machine
Special Placing Equipment for Arch and Invert

Miscellaneous

25—1½" to 4" Electric Pumps
2—60 K.W. Diesel Generator Sets

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION COMPANY
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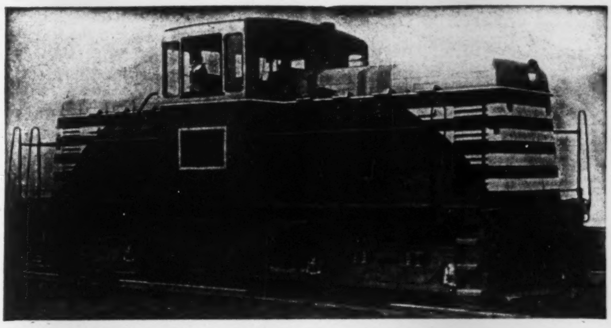

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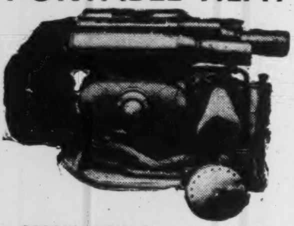

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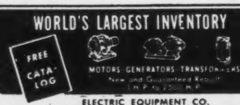

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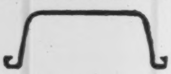

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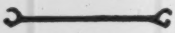

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A complete line of Engineering Instruments and Equipment for field or office. Write for catalog N.R. 2-11.

WARREN-KNIGHT CO.
Manufacturers of Sterling Transits and Levels
136 No. 12th St., Philadelphia 7, Penna.

Cheaper than LAWSUITS!

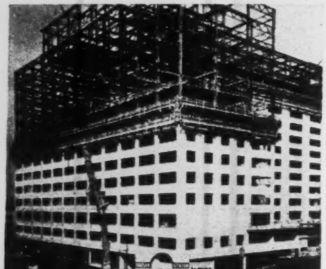
FAIRBANKS-MORSE GENERATING SETS

Power failure can start a lot of trouble for theater operators, hospitals, institutions, churches, schools, police, fire and other municipal departments. Injuries, loss of life, and property damage can lead to costly lawsuits.

Install a Fairbanks-Morse Generating Set for quick power during emergencies. Available in a capacity to meet your needs. Write Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE,

a name worth remembering



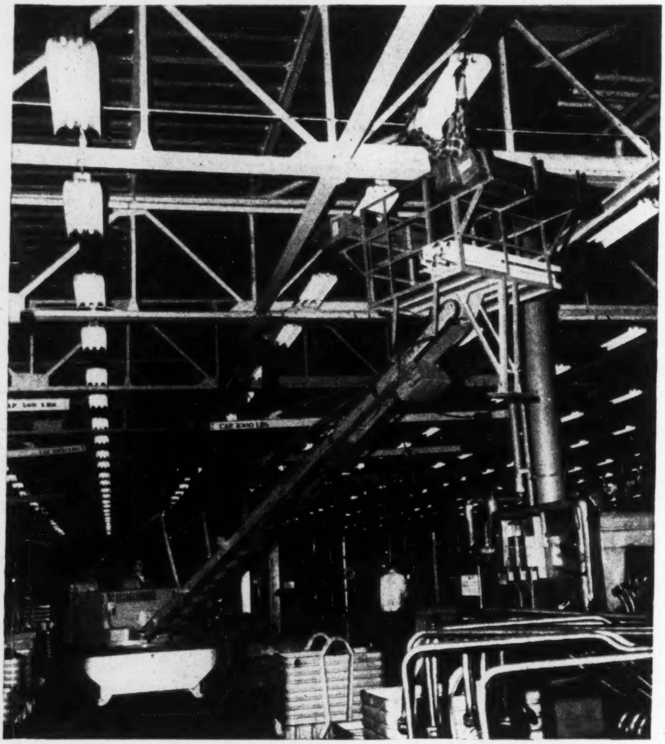
Another Success Story For Plastic Surfaced Plywood

"Saves 20%"

PLASTIC surfaced Douglas fir plywood concrete form panels were used to pour exterior walls and interior room ceilings on the new Statler Hotel, Los Angeles. Contractors Robert E. McKee, Inc., Los Angeles, report time and labor savings of 20% because forms were easy to build, produced smoother concrete surfaces, and provided an average of 15 re-uses on the job. Finishing time was greatly reduced because of the smooth plastic panel faces.

Plastic surfaced plywood combines the advantages of both plastic and Douglas fir plywood. Get full information about the many industrial and construction uses for this unique panel material. Write Dept. 3211A, Douglas Fir Plywood Association, Tacoma 2, Washington.

NEW PRODUCTS



Maintenance at new Caterpillar plant goes over with a big "boom"

A 6,000-lb-capacity Yale electric crane truck equipped with the latest idea in an articulated platform is used for faster, easier maintenance on lighting and all other overhead equipment at Caterpillar Tractor Co's new plant in Joliet, Ill. Repair men step on the platform at floor level and the operator quickly booms up to put them within convenient reach of the most out-of-the-way fixtures.

Mechanical linkage keeps the platform perfectly level at all heights, the boom can be telescopically extended to a maximum of 19 ft, and the cab will swing through 270 degrees. This same truck is used with equal ease outside the plant to reach from walks and drives over lawns and tree belts to service lights, signs, etc. The new Caterpillar plant has a manufacturing area of 662,400 sq ft with high-intensity fluorescent lighting (32 ft-c) throughout. It reached full production Feb. 1 (ENR May 29, '52, p 85). THE YALE & TOWNE MANUFACTURING CO., PHILADELPHIA 15, PENNA.

Slide rule type selector for wood beams and girders

Resembling a slide rule, a new plastic selector has been developed for determination of proper wood joists, rafters and girders in a matter of seconds. Eight inches long, the selector has two reversible slides. One slide is used for members where bending is the governing factor; the other (of a different color) to be used where deflection must not exceed 1/360 of the span.

It has been based on two accepted criteria for design of all elastic beams: That the extreme fiber stress in bending (as determined by the flexure formula, $S = \frac{MC}{I}$) shall not exceed

(Continued on page 130)

RUST-OLEUM
BEAUTIFIES AS IT PROTECTS
RUST PREVENTIVE
STOPS RUST!
769 DAMP-PROOF RED (SO)
MANUFACTURED BY
RUST-OLEUM CORPORATION
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This practical coating may be applied directly over surfaces already rusted without removing all the rust! Simply wirebrush and use sharp scrapers to remove rust scale and loose particles . . . sandblasting and chemical pre-cleaning are not usually required. Easy to apply by brush, dip, or spray . . . dries to a firm, pliable coating. Cut your maintenance costs, save metal — with RUST-OLEUM! Prompt delivery from Industrial Distributor stocks in principal cities.

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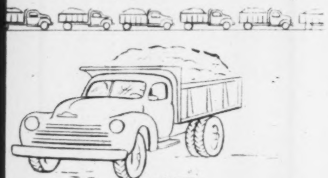


HIGH LIFT—More than 10-foot clearance under the buckets permits loading of the highest trucks with a Reese hydraulic Loader.

and less operator fatigue!

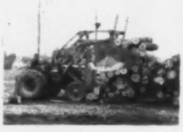
GET THE POWER, speed and high lifting ability of a Reese Hydraulic Loader. It has a lifting capacity of 3 tons . . . a clearance of over 10 feet at top of the lift . . . and a bucket indicator to guide the operator.

With a Reese Loader the operator never watches the bucket. A glance at the indicator shows the bucket angle. When raising the bucket it will maintain this set angle at all heights from the digging to the dumping point.

Reese Loaders are built in two sizes for Minneapolis-Moline Tractor Models UTIL and RTI.

See the Reese Loader in action at your Minneapolis-Moline dealers' or write for information.

REESE ENGINEERING CO., 9517 E. Rush St., El Monte, Calif.



VARIETY OF USES—The Reese Loader is adaptable to a variety of jobs. The fork lift, jib boom and back-fill blade are only a few of accessible attachments. Each can be installed in less than fifteen minutes.

REESE Hydraulic Loaders

DRILLING CONTRACTORS

Diamond and Shot Core Borings
Dry Sample Borings
Grout Holes and Pressure Grouting
Foundation Testing for Bridges, Dams and other Heavy Structures

Manufacturers, also, of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320

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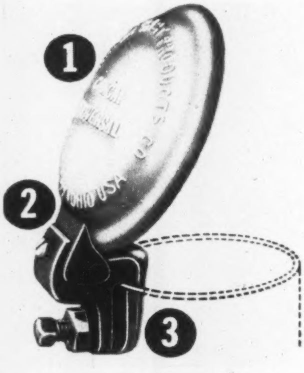
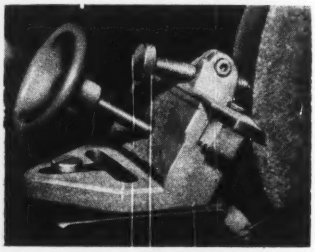
Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

the allowable; and that maximum vertical deflection shall not exceed 1/360 of the span length. The selector provides several alternate solutions, enabling designers to make economical choice under space limitations. EVERETT RADER CO., DEPT. E., BOX 122, BOWLING GREEN STATION, NEW YORK 4, NEW YORK.



Redesigned exhaust cap has three new features

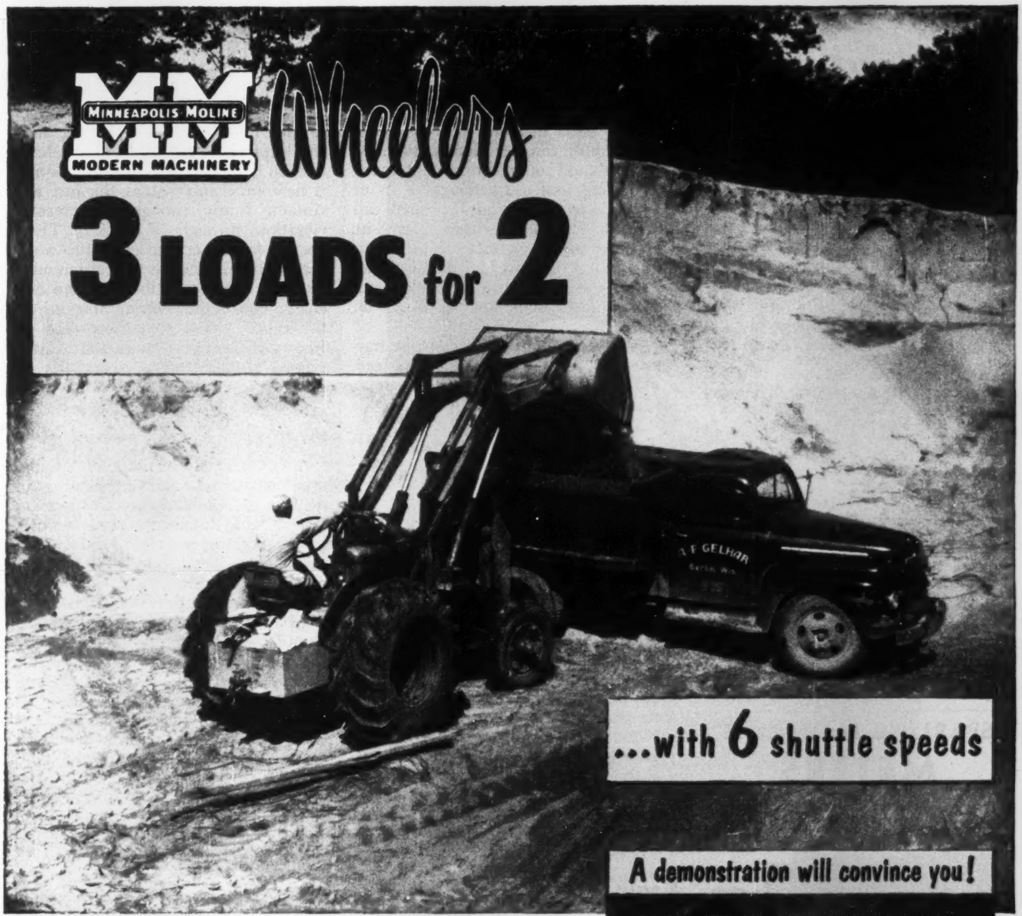
No collars, clamps or bushings are needed to install the new Cancap vertical exhaust pipe protector. A malleable mounted bracket (Fig. 3) slips over the pipe and is held by a cadmium-plated set screw. Cap (Fig. 1) is cast lightweight aluminum alloy, fused around the top of a malleable tear-shaped hinge (Fig. 2) affording extra lightness to open with first puff of exhaust. Smallest size fits pipe from $1\frac{3}{8}$ in. to $2\frac{3}{8}$ in.—and four other sizes fit pipes up to 5 in. o.d. CANTON CAST PRODUCTS COMPANY, CANTON 9, OHIO



Wheel dresser can true and face grinding wheels

The face on almost every grinding wheel is flat and square to its axis. Special types, however, have faces that are curved or sloped off at an angle.

(*Continued on page 132*)



MINNEAPOLIS-MOLINE MM MODERN MACHINERY Wheelers

3 LOADS for 2

...with 6 shuttle speeds

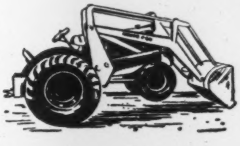
A demonstration will convince you!

MM WHEELERS Load Faster...Dig Better!

MM exclusive UTIL shuttle gear gives instant reversing of all 6 speeds—offers you foremost value in modern high-speed tractor loading and dozing. All tractor and engine parts are larger ... more durable and are completely built in MM plants. This results in reduced cost of MM Wheelers for their weight and capacity, plus the assurance of exacting quality control. Heavy-duty design and conservative power rating at low engine speeds permit continuous full load operation in any gear ... added capacity without over-loading!

Exclusive Down Power Digging!

MM Wheeler-Loaders have extra large double-acting hydraulic cylinders and bucket control that permits *successful* subsurface digging. Solid saddle mounting of loader on built-in mounting pads and hydraulic down pressure permits powerful bucket crowding action and increases traction on rear driving wheels. Accurate bucket control also permits carrying a grade. Attaching equipment for MM Wheelers is expressly engineered to produce a *complete operating unit and finest, single-package performance!*



Compare MM Features

- **MM high turbulence engine.**
- **UTIL 6 speed *shuttle gear.***
- **MM exclusive front wheels and axle design.**
- **Heavy-duty final drive enclosed in transmission.**

MINNEAPOLIS-MOLINE MINNEAPOLIS 1. MINNESOTA

Wood Piles Above Water Table are Permanent

When Pressure-Creosoted and Correctly Used

Major building codes recognize pressure-creosoted piles, cut off above water table, as permanent. Such foundations are today demonstrating their efficiency by bearing the tremendous loads of towering multi-story buildings. Write for Booklet WO5-100 which tells the story of wood piles.

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LASTING SATISFACTION

Install thhe Sparling Meter as though it were a length of the pipe itself. Read the totalizer and log your deliveries. You are all set for years of consistently accurate measurement of flows.

Bulletin 311 and quotations are yours for the asking.

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With any of these, the dressing tool can guarantee this precision facing and truing of grinding wheels far exceeding hand dressing.

The unit can be adapted to most pedestal and other grinders without disturbing tool rest setting. A ¼- or ½-carat select diamond furnished can dress hard grinding wheels from 8-in. diameter and 1-in. face (with a corresponding increase in diameter for softer wheels) down to correspondingly smaller diameters up to 2¼ in. in width.

The large front knob controls traverse and the set screw limits in-feed. Monarch Machine Shop, Inc., Madison, Wisconsin

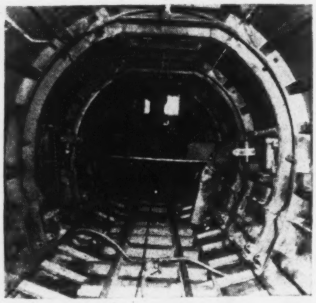
Tester checks voltages from 80 to 600, ac or dc

A combination of advantages and safety features has been built into a new tester that can be used for checking electric circuits, spark plugs, motors, fuses, and a variety of electrical equipment. Capacity includes voltages in the range from 80 to 600, ac or dc.

Called the "Test-Glo", its safety features include: 24-in. lead wire between test prods; 5-in. prod handles for deep probing; safety-rings on prods to prevent fingers from contacting tips; 10,000-volt lead wire; high grade resistors between each prod; neon lamp at front of prod in line-of-vision; all parts sealed against moisture. Ideal Industries Inc., 4102 Park Avenue, Sycamore, Illinois.

Vibrators assure dense concrete in tunnel lining pour

The tunnel below is a six-mile bore of horseshoe shape with finished diameter of 9 ft 3 in. Concrete lining of 11-in. average was poured continuously, on advancing slope method with pneumatic power. Viber electric internal vibrators were used to vibrate concrete from invert to spring-line level of the arch, fed into the pour through inspection doors. Later new type external vibrators were fastened to the form ribs above spring line and leapfrogged ahead on 8-ft centers, one on each side of the arch form. A new air clamp fastens the internal vibrator firmly enough to transmit vibrations through 20 to 25 ft. They operate for 40 seconds every two minutes. On this job the tunnel foreman fastened one to an elbow on the discharge line to prevent any plugging of the tube. Viber Company, 726 S. Flower Street, Burbank, California.



Airplane braking system on over-the-road vehicles

A. C. Gunsaulus, manager of development activities for the wheel and brake division of Goodyear Aircraft Corporation, Akron, Ohio, disclosed recently how a braking principle used on airplanes has been found suitable for over-the-road vehicles. An electrical anti-skid device, developed by Goodyear, is said to be able to keep wheels from locking, thus avoiding out-of-control skidding and, in the case of tractor trailers, jackknifing.

According to Mr. Gunsaulus, "a rolling tire provides control while a sliding tire prevents control. Safety demands that wheels be kept rolling. Premature wheel stoppage means a sliding tire, a lessening of the tire's grip on the road and an excess of braking pressure."

Numerous tests proved that the new electrical anti-skid device will prevent pedal pressure from locking brakes, thus keeping tires rolling instead of sliding. Two electrical sensing units, each weighing about 5 lb and containing a small generator, were placed on the rear wheels of the tractor for tests. By controlling the brake pressure, the electrical unit produces a "stuttering" rotation of the vehicle wheel.

This stuttering effect is caused by a sensing feature which neutralizes excessive braking force by alternately releasing and re-applying the pressure controlling the gripping force of the brake drum lining. Goodyear Tire & Rubber Co., Akron 15, Ohio.

Rig sharpens circular saws; planer and jointer knives

"Sharp-Smith" is a new machine for sharpening and setting circular saws as well as for sharpening planer and jointer knives, hand plane irons, wood chisels and other cutting edges. It's said to be able to joint, gum, bevel

grind and set all makes of circular saw from 4- to 48-in. diameter. With planer and jointer knives the operator needs only to set height and bevel once; then the entire set of knives can be sharpened without resets. There's one positive setting for jointing circular saw teeth and another for uniform depth of gullet, assuring perfect balance without wobble or vibration. BELSAW MACHINERY CO., DEPT. S-381, 315 WESTPORT ROAD, KANSAS CITY, MISSOURI.

New Product briefs . . .

Kling Felt No. 113 features a new, solvent-activated adhesive-back on one side that permits **weather stripping of metal casements, windows, doors and vents** in all kinds of weather without gluing or tacking. Made by **Products Research Company, 3126 Los Feliz Boulevard, Los Angeles 39, California,** it is available in thicknesses of 1/32, 1/16, 1/8 and 1/4 in. widths from 1/4 in. to 66 in.

An **emergency stand-by generating plant,** is available from **Universal Motor Company, 494 Universal Drive, Oshkosh, Wisconsin.** This new electric plant has a 10-kw capacity, is available with electric or automatic starting, and can be furnished for single- or three-phase service, at either standard or special voltages.

The new oversize **automotive battery of industrial type** construction offers a life expectancy of 5 years or more in normal car use, according to the manufacturer, **Gould-National Batteries, Inc., St. Paul, Minnesota.** The giant battery called "Mr. Big" is available to most makes of cars by utilizing special hold-down clamps and, because of its unusual capacity, the water needs to be checked only every 5,000 miles.

Have you discovered these

'Hidden Values'

in Red-Strand wire rope?

You get 3 important, unseen values in Hercules *Red-Strand.*

The first is *extra endurance.*

The second is *consistently high performance.*

The third is complete *dependability.*

These values are made possible by Leschen's exacting insistence upon *higher-than-rated* quality . . . by precise, specialized manufacturing craftsmanship . . . and by the constant use of only the finest known grade of steel for long-lasting Hercules *Red-Strand* wire rope.

Service records prove these hidden values. Your records will too.

For savings' sake, find out

Higher operating profits may be yours with Hercules *Red-Strand* wire rope. Talk it over with your Leschen wire rope specialist . . . before you place your next rope order. Or, write for bulletin.

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PREFORMED
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WIRE ROPE

A. Leschen & Sons Rope Co., St. Louis 12, Missouri

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PUBLICATIONS

Torque Converters—A 4-page illustrated booklet (TC-639) presents information on the Torcon heavy-duty automatic hydraulic torque converter. Designed to handle variable loads at variable speeds, the unique transmission combines a hydraulic torque converter and hydraulic coupling in a single unit and retains the advantages of both. It further explains that the hydraulic transmission can be optionally furnished with or without cut-off clutches. TORCON CORPORATION, ASHTABULA, OHIO.

Electrical Fittings—This 12-pager describes the manufacturer's complete line of solderless wire connectors, cable and conduit fittings and wiring devices. Several illustrations describe "pres-SURE connectors" for solderless wire splicing and terminating, along with specifications, dimensional data, application and ordering information. BUCHANAN ELECTRICAL PRODUCTS CORPORATION, HILLSIDE, N. J.

Globe Oilift Elevators—Oilifts are oil-hydraulic elevators for freight and passenger service, and cover a full, wide range of installations from small apartment house elevators to heavy duty units capable of lifting fully loaded fork trucks or motor trucks in factories, warehouses and storage depots. This booklet points out the economies of installing oil-hydraulic powered elevators in three-, four- and five-story buildings. Since elevator cars are supported by plunger shafts of the hydraulic cylinders, no load-bearing walls are required, nor is there need for a penthouse atop the roof to house cable drums or sheaves. GLOBE HOIST COMPANY, EAST MERMAID LANE AT QUEEN STREET, PHILADELPHIA 17, PENN.

Protecting Masonry Structures—The theme of a new 20-page booklet on Dum-Dum Masonoc, a heavy self-sealing protective coating, is the one best answer for protecting and restoring masonry structures. Described as not a paint but a heavy coating which can be applied many times thicker than paint and which has a term of protection many times that of paint, the material is said to have sufficient give to allow for expansion and contraction of material. Large illustrations show restoration and protection of 19 different types of masonry structures against attacks of wind, weather, fumes and heat. ARCO COMPANY, 7301 BESSEMER AVENUE, CLEVELAND 27, OHIO.

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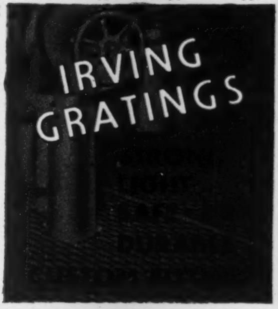

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EDITORIALS

What the customers want

THE NATION'S VOTERS two weeks ago not only chose their favorite candidates, but expressed some definite preferences for particular types of construction. For a construction industry that is wondering what lies ahead, the election results on bond issues and other proposals for raising construction money should not be overlooked. For, in revealing what the customers want—and are willing to be taxed for—the results strongly suggest what the construction pattern will be, at least in the field of public works.

Improved streets and highways, for example, had the greatest appeal. Not only were bond issues overwhelmingly approved, but gas tax and license fee diversion to other than road purposes was disapproved wherever it appeared on the ballot. Schools were nearly as popular as roads, and only rarely was a turndown recorded. Sewage treatment and drainage projects ranked third in popularity. Far down the list, with frequent rejections, were such public buildings as court houses and jails.

What the voter said in effect was that he would buy those things that he thinks he needs, either as a result of his personal experience or the persuasion of others. He has not yet been persuaded that new public buildings are necessary to his comfort, convenience or welfare. But, by voting the substantial total of $1.3 billion, the voter also declared that he will not stint on paying for public works demonstrated to him to be useful.

Further broad conclusions on the basis of local election results are apt to be wrong or misleading, yet Louisiana suggests one that is tempting. There, the voters approved a long list of major road, street and bridge projects for the New Orleans area, where the new union railroad station and related expressway construction have brought civic pride in such improvements to a high pitch. The conclusion is that if the people are shown the way—by bold attack on a major need such as removal of railroad tracks from city streets—they will welcome and even demand an expansion of the improvements.

Most of the other election results have a purely local importance, but may be straws in the wind nevertheless. For example Portland, Ore., rejected an urban redevelopment scheme that included federal participation. Cincinnati would not throttle public housing by requiring that sites be selected by popular vote. San Francisco voters gave aid and comfort to those favoring a new Bay bridge by refusing to help pay for studies of proposed earthfill crossings. Central Kansas farmers voiced a protest against Tuttle Creek Dam on the Blue River, a necessary part of the flood protection scheme for the Kaw Valley cities. Arkansas voters decided that they did not want new industries badly enough to tax themselves to attract them—an action contrary to what has seemed a general trend. And in the public improvement authority field, New Jersey followed the example set by New York on its Thruway by placing state backing behind proposed new parkway bonds to obtain a lower interest rate, while in Pennsylvania the voters turned such a proposal down.

All in all, however, the voters of the nation spoke in tones both definite and encouraging for the future of public works construction. Faster, safer motor transport, better schools, and cleaner waters are the things they want most. For the things that are not wanted, as shown by the negative votes, proponents are warned to prove their worth.

Deeper St Lawrence waterway

DEEPENING THE HUDSON RIVER as far as Albany from 27 ft to 32 ft in soft bottom and 34 ft in rock has been recommended by the Army Engineers to permit grain carriers and oil tankers to move out of and into that inland port under full load. This gives new force to the statement made frequently in shipping circles that the 27-ft depth of the St. Lawrence Ship Canal is outmoded, that it should be 35 ft. Only 10% of vessels flying the U. S. flag could pass through a 27-ft channel when fully loaded, according to Vice Admiral E. L. Cochrane of the U. S. Maritime Administration.

Even though Canada now plans to build the ship canal with no help from this country, the depth should be a matter of interest to the United States government. An inadequate depth could limit the usefulness of the canal to the cities on the Great Lakes and to ore carriers serving the new mines in Labrador. Which points to the need for a more realistic approach to the whole St. Lawrence development program on the part of the U. S. Congress.

If the Federal Power Commission approves the application of New York State for authority to join with Ontario in development of power in the St. Lawrence, the way will be cleared for Canada to go ahead with the all-Canadian ship canal. However, it still would not be too late for our Congress to raise the question as to depth, and to offer to share in the cost of a deeper canal if a new study of the shipping situation should show that to be desirable.

In any event, common sense would appear to dictate reconsideration of the whole matter of joint construction of the project. A chief reason for such reconsideration is the probability that a route for the ship canal in the international section of the river on the New York side, as was proposed under the discarded 1941 agreement, is better from both a construction and an operating viewpoint than is a route on the Ontario side, as is now planned by Canada. Drafting a new agreement should not seriously delay a start on the project.

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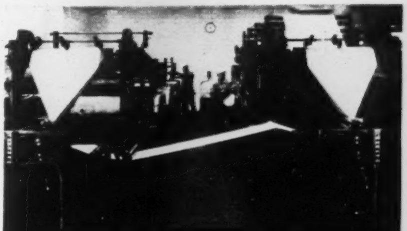

A view inside the plant showing a portion of the Masterplate Floor.

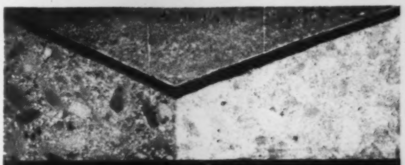

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Photo Craftsmen, Inc., Norfolk

Virginia's new Norfolk-Portsmouth vehicular tunnel under the Elizabeth River was opened officially on May 23rd this year. Preliminary estimates of the tunnel's traffic proved to be on the conservative side. By August 10th—80 days after the opening—1,000,000 vehicles had passed through the new facility.

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